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A BRIEF REVIEW OF SOME THEORIES OF ECONOMIC GROWTH*

By W. M. CORDEN

I. INTRODUCTION

New theoretical developments in economics usually go through three stages: first the proliferation of models, second the consolidation and exposition of the theories, and third the critical review of their assumptions and their adaptation to the everyday work of the applied economist. It is evident from recent economic literature that the theory of economic growth has been vigorously going through the first stage; this paper is a contribution to the second stage. It is an attempt to expound in a logical non-mathematical form the main features of certain of the models, and in particular their relationships to one another.¹

A warning must first be given about what these model-building studies are trying to do. They should be distinguished from descriptions of the economics of under-developed countries, for describing countries in a particular stage of growth is not growth theory. They should also be distinguished from explanations of historical processes — of why countries have or have not grown. Studies of the 'take-off', for example, may well require a logical model, but the model itself is hardly enough. All that growth models can claim to do is to spell out the implications for the rate of growth of a number of plausible assumptions about the working of the economic system. The aim of this paper is to emphasize the choice of assumptions.

It must be stressed that this paper is highly 'academic' in approach. It is concerned only with pure deduction from a number of very simple premises. This is far removed from the models required by economists who are concerned with the practical problem of economic growth. But perhaps there is some value in exploring the implications of various simple relationships in order to understand better the full complexity of the practical world.

The models can be roughly classified by their intellectual origins, though since there is so much overlapping it would be inconvenient to adhere too closely to this classification. Modern textbooks usually have two parts, a neo-classical and a Keynesian. Some growth models try to 'dynamise' neo-classical and others Keynesian theory. This immediately gives us two classifications. Models which assume full employment and that factors of production can be substituted for one another may be described as neo-classical, while models which concern them-

* This article was written during a short visit to Singapore while I was on leave from the University of Melbourne. I am much indebted to Mr. Ronald Ma for help in the presentation and for forcing me to clarify my thoughts on the subject in order to produce something which, we hope, is now comprehensible to the layman in the field of growth theory. I am also indebted to Dr. D. Usher for a critical comment incorporated in the last section.

1. For another survey of growth theories, but in a more mathematical form, see H. A. J. Green, "Growth Models, Capital and Stability", *Economic Journal*, LXX, 277, March 1960, pp. 57-73. A synthesis somewhat similar to that of sections IV and V of the present paper can be found in Benjamin Higgins, *Economic Development. Principles, Problems and Policies*, London: Constable & Co. 1959, Ch. 17, "A Synthesis of Theories of Underdevelopment".

selves with the problem of investment incentives and adequate demand are Keynesian in inspiration.

Then there is the classical inspiration — Malthus, Ricardo and Marx. Very broadly one might say that models which assume that the rate of growth of the population changes in response to the standard of living are Malthusian; models which have a primary or subsistence sector on the one hand and a market or manufacturing sector on the other, and which assume that most or all savings are out of profits, are Ricardian in inspiration; and models which emphasize the distinction between a consumption-goods and a capital-goods sector are Marxian. It need hardly be added that this classification is somewhat arbitrary; the 'Malthusian' assumption is part of Ricardo's model, and the 'Marxian' assumption does not exclude the 'Ricardian'.

II. THE NEO-CLASSICAL MODEL

Suppose there are two factors of production, labour (N) and capital (K), and that they can and will be substituted for each other if necessary to maintain full employment of both. Suppose that there is a given production function of constant returns to scale, so that if capital and labour both increased, say, by 3%, output would increase by 3%. This gives us the simplest basis for a neo-classical model, and to readers brought up on Marshall and Benham this is the most useful starting point.

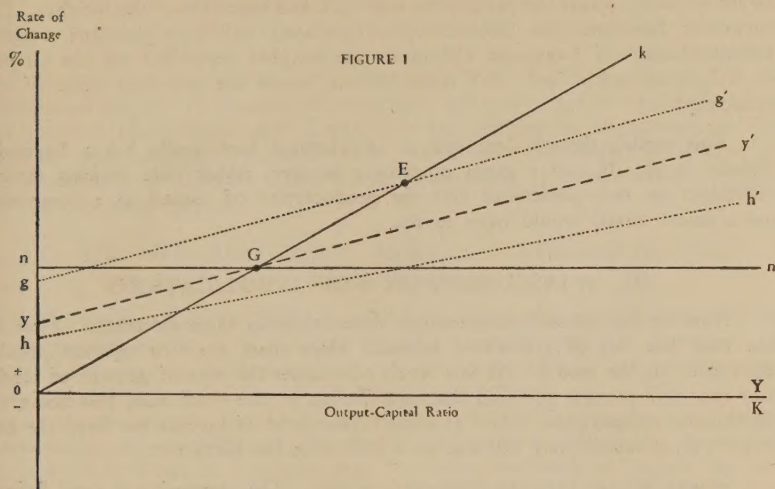
Let us now suppose that the rate of growth of labour is actually 3% and of capital 4%; output (Y) will then grow at some intermediate rate, the exact rate depending on the relative weights given to inputs of capital and labour in the production function. The simple version of this model assumes the rate of growth of labour as given for the purpose of the exercise. The rate of growth of capital, in turn, is a function of the average propensity to invest and the output-capital ratio. This follows from the algebraic identity

$$\frac{dK}{K} = \frac{dK}{Y} \cdot \frac{Y}{K}$$

$\frac{dK}{Y}$ being the average propensity to invest.

The model also assumes that the average propensity to save is given, and that the rate of interest varies so as to bring investment to the level of savings, so that in fact the investment propensity is given by the savings propensity. Hence the terms 'investment propensity' and 'savings propensity' can be used interchangeably here. Thus we now have the given rate of growth of labour and the rate of growth of capital, the latter depending on the given propensity to invest and on the only variable in the model, the output-capital ratio. But what does the output-capital ratio depend on? Clearly, this depends on the relative growth rates of output and capital. And, with constant returns to scale and no technical progress, this means it will depend on the relative growth rates of labour and capital. For example, if capital grows faster than labour, output will grow more slowly than capital, though more quickly than labour. So the output-capital ratio will decline.

REVIEW OF ECONOMIC GROWTH THEORIES



This model has been represented in a simple diagram by Professor Swan.² In Figure I growth rates are represented on the vertical axis, and the output-capital ratio on the horizontal. The line nn' indicates the given growth rate of labour, and ok the growth rate of capital for a given propensity to save — the higher the output-capital ratio the greater the rate of growth of capital. The line yy' denotes the growth rate of output; it need not be a straight line, but the assumption of constant returns to scale requires that it meets nn' and ok at their point of intersection G , and that it runs within the limits of nn' and ok . It is evident that the system will tend to equilibrium at G ; above G output is growing more slowly than capital, so that the output-capital ratio falls, and similarly below G the output-capital ratio rises.

At least two complications can be introduced without difficulty at this stage. First, there may be technical progress at a rate t , causing output to grow quite independently of increases in inputs of the factors of production; this means that the growth rate of output at various output-capital ratios is now higher by t , and follows the line gg' . The long-term equilibrium is now at E . Second, there may be a third factor of production, land, which is in fixed supply. This means that the production function for labour and capital is really subject to diminishing returns to scale, and (with no technical progress) the growth rate of output then follows a line such as hh' which meets ok to the left of G .

The relative importance of the inputs of capital and labour (that is, the weighting given to the two factors of production) determines whether the output growth line is closer to the capital or the labour growth line. These weights attached to capital and labour in the process of growth follow from the production function. One of the refinements which has been put into this model is to

2. T. W. Swan, "Economic Growth and Capital Accumulation", *Economic Record*, XXXII, November 1956, pp. 334-61. See also R. M. Solow, "A Contribution to the Theory of Growth", *Quarterly Journal of Economics*, XLIII, 3, February 1956, pp. 65-94 for a mathematical presentation of the neo-classical theory of growth.

be more specific about the production function and hence about the weights. One particular function (the Cobb-Douglas function) will give constant weights; another family of functions will make the weights dependent on the output-capital ratio, and so on. But it is difficult to see the practical value of this refinement.

This model, though described as neo-classical here, really has a Keynesian element in it. It uses a given propensity to save, rather than making savings dependent on time-preference and the productivity of capital as a completely neo-classical model would have to do.

III. A DISCUSSION ON SOME COMPLICATIONS

Now we can proceed to introduce elaborations in three directions. First we can vary the rate of growth of labour. Here there are two separate possible ingredients in the model. At low levels of income the rate of growth of labour may rise with income per head due to a decline in the death-rate, this being the Malthusian complication. And at some higher level of income per head the rate of growth of labour may fall due to a decline in the birth-rate.

Second, we can vary the propensity to save. The propensity to save, defined in real terms, could be—and has been—made to vary with (a) the national income per head, (b) the relative price of capital-goods, (c) the distribution of income, and (d) time-preference and the productivity of capital. Each of these assumptions can yield a radically different model.

Finally, we can vary the production function. Even our simple model has already allowed for varying production weights and varying returns to scale, and it has shown the effect of technical progress, which is a shift of the production function over time. But a completely different model results if we assumed that the factors of production could not, or would not be substituted for each other, either at all or beyond certain limits.

It is not possible to explore all these elaborations here, and to simplify the discussion we will henceforth assume rather drastically that there is no technical progress and that returns to scale are constant. And we will not discuss the case where the savings propensity depends on time-preference and the productivity of capital.³ We will also pass over the 'Ricardian' elements in the models which provide for a subsistence or primary-producing sector as well as a market or manufacturing sector.⁴

These assumptions greatly reduce the scope of this paper and explain why the title refers only to *some* theories of economic growth. To assume absence of technical progress is particularly crucial and does not imply that any of the authors referred to have actually forgotten about technical progress. The aim here is to show what various theories have to say about the relationship between growth of capital, growth of labour and growth of output, ignoring for the sake of simplicity various other complications.

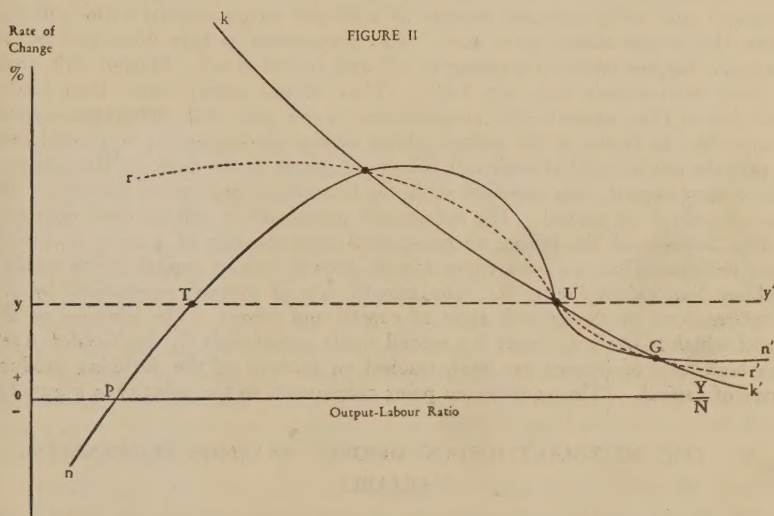
3. See W. Leontief, "Theoretical Note on Time-Preference, Productivity of Capital, Stagnation and Economic Growth", *American Economic Review*, XLVIII, 1, March 1958, pp 105-11.

4. A modern 'Ricardian' model is presented in W. A. Lewis, "Economic Development with Unlimited Supplies of Labour", *Manchester School of Economic and Social Studies*, XXII, 5, May 1954, pp 139-91. The elaboration is also to be found in parts of Joan Robinson, *The Accumulation of Capital*, London: MacMillan, 1957.

In Section IV the population growth rate will be varied while the savings propensity is held constant; this yields a simple modern version of the Malthusian theory. In Section V not only population growth but also the savings propensity will be varied with income per head, yielding a more elaborate version of the Malthusian theory. In Section VI the savings propensity will be varied, first with the price of capital-goods and second with the distribution of income, but this time the population growth rate will be held constant. Finally, in Section VII the neo-classical production function will be discarded, yielding a dynamic version of the Keynesian model.

IV. THE NEO-MALTHUSIAN MODEL: SAVINGS PROPENSITY CONSTANT⁵

The simplest type of model in which the population growth rate is varied is represented in Figure II. As in Figure I, growth rates are shown on the vertical axis, but the ratio now shown on the horizontal axis is output per head (the output-labour ratio) and not the output-capital ratio. The curve representing the growth rate of labour is nn' . At first it rises due to a falling death-rate, and at some stage it falls due to a decline in the birth-rate. Eventually it tends to level out at a positive rate. At very low levels of income per head the population would actually decline. At P the population is stationary.



If we wanted to avoid further complications we could assume the rate of growth of output as given, represented by the horizontal line yy' . This would be possible if output depended only on inputs of capital, and not labour; if output actually varied proportionately with capital (so that the output-capital ratio would be constant) and if the investment (= savings) propensity were fixed. A

5. This and the next section are based on R. R. Nelson, "A Theory of the Low-Level Equilibrium Trap in Underdeveloped Countries", *American Economic Review*, XLVI, 5, December 1956, pp. 894-908, and H. Leibenstein, *Economic Backwardness and Economic Growth: Studies in the Theory of Economic Development*, New York: Wiley, 1957.

constant output-capital ratio and investment propensity would yield a constant rate of growth of capital, and the assumption that output varies proportionately with capital would ensure that the constant capital growth rate also involved a constant rate of growth of output.

We then find that there are two equilibria, a stable one at T and an unstable one at U. Below T output grows faster than labour, so that output per head increases and the economy approaches T. Above T and below U output grows slower than labour, so output per head declines and the economy also approaches T. Thus T is a stable equilibrium at a low level of income per head. This stable Malthusian equilibrium has been described as the "low-level equilibrium trap in under-developed countries".⁶ On the other hand, on each side of U the economy tends to depart further away from it. Thus below U the economy will tend towards T, while above U output grows faster than labour so that output per head increases. If income per head can somehow be raised above U it will then increase further of its own accord.

The next step is to combine the neo-classical model of Figure I with the neo-Malthusian model of Figure II. We still assume that the propensity to save is given, but now output depends on inputs of both capital and labour and we must allow for a variable output-capital ratio.

The key here is that with a given production function (that is, no technical progress) and with constant returns to scale the output-capital ratio will fall when the output-labour ratio rises. This proposition is best illustrated by an example. Suppose labour is growing at 3% and capital at 4%. Output will grow at some intermediate rate, say 3.6%. Thus output grows faster than labour and slower than capital—the output-labour ratio rises and the output-capital ratio falls. In Figure II the output-labour ratio is shown on the horizontal axis, so that the output-capital ratio will fall as one moves to the right on the diagram. The output-capital ratio together with the investment propensity determines the rate of growth of capital. The investment propensity is still assumed constant, and on account of the falling output-capital ratio the rate of growth of capital must decline. Thus we get a curve for the growth rate of capital which steadily declines, like kk' in Figure II. The growth rate of output, represented by rr' , is intermediate to the growth rates of capital and labour. The addition to the model which is likely to result is a second stable equilibrium G, the 'Golden Age', at a high level of income per head, reached on account of the declining productivity of capital. (This equilibrium point corresponds to the point G in Figure I).

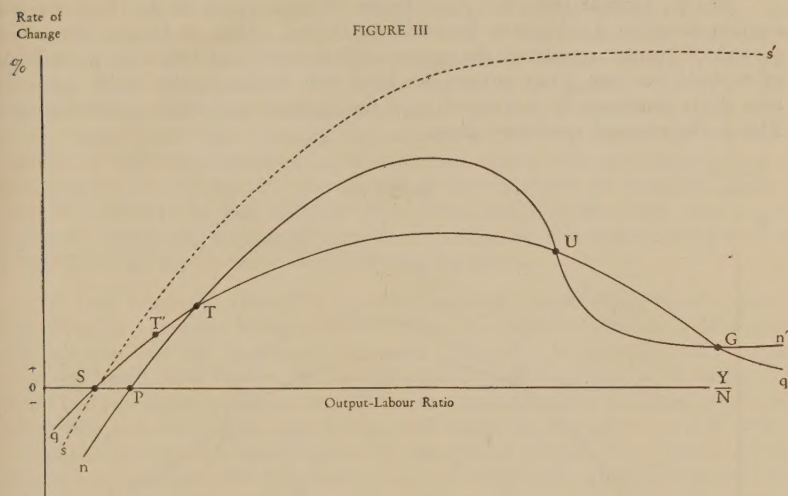
V. THE NEO-MALTHUSIAN MODEL: SAVINGS PROPENSITY VARIABLE

A further step in this combined neo-Malthusian neo-classical model is to allow the propensity to invest to rise with income per head at lower income levels. We now draw a curve ss' (Figure III) showing the ratio of investment to output at various levels of income per head. Investment is zero at S, and below S the country is running down its capital; in the higher ranges of income per head the investment propensity may be assumed to remain constant.

As drawn in Figure III, S is to the left of P; that is, when the population is stationary investment is positive and there is a range — between P and S — when

6. R. R. Nelson, *op. cit.*

investment remains positive even though the population is declining. An alternative is to assume that S is to the right of P , so that when the population is stationary the country is still disinvesting. And of course S and P could coincide. The case where S is to the right of P is more complicated and will be put aside for the moment. The discussion here refers to the case represented in Figure III.



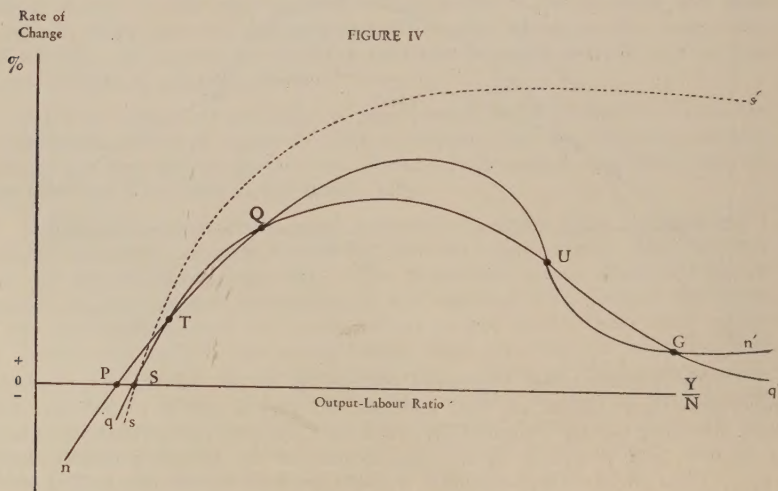
With the investment propensity represented by ss' and the output-capital ratio declining as output per head increases, the growth rate of capital may now look something like qq' (Figure III). At first it rises due to the rising investment propensity, and eventually it falls on account of the declining output-capital ratio. There are here three equilibria, a stable low-level equilibrium at T , a stable high-level equilibrium at G , and an unstable equilibrium at U . But all sorts of results are possible and the reader may experiment with various permutations. For example, the qq' curve might rise high enough to avoid intersecting nn' before G ; in this happy circumstance there would be no low-level Malthusian 'trap' and until the point G is reached capital would always be growing faster than labour. On the other hand, there might be no intersection of qq' with nn' beyond T , so that there is no opportunity to achieve a high income by some kind of 'push' beyond an unstable equilibrium such as U .

There could also be an unstable equilibrium at a negative rate of growth. Below it the economy would fast decline towards zero. Above it output would at first decline, but at a diminishing rate. Since the decline in population would be greater than that in capital, income per head would rise and the point would be reached at which the downward trend in output is arrested, after which the growth rate would become positive, gradually increasing to the rate appropriate to T .

Suppose medical progress lowers the death-rate for any given income per head and thus shifts the entire labour growth curve upwards. If the economy has initially reached the low-level stable equilibrium T , this equilibrium will now shift to the left along qq' , say to T' . The result is at first sight surprising, since a fall in the death-rate appears to have the eventual effect of lowering the

rate of population growth. The explanation is that given the income per head the increase in the rate of population growth lowers *per capita* income so drastically that the population growth rate eventually falls below its original level. This result is only possible because the investment propensity has been assumed to fall as income per head falls.

Finally, suppose there is a fixed factor of production, land. Thus the production function is subject to diminishing returns. Then, as long as the rate of growth of output is positive, the output-capital ratio (and hence the growth rate of capital) for any given output per head will decline. The entire qq' curve now shifts continuously downward until finally there is a stable equilibrium at P. This is the classical stationary state.



Now consider the situation represented in Figure IV where P is to the left of S. Between P and S the community is disinvesting when population growth is positive. As drawn in Figure IV there are four equilibria, unstable equilibria Q and U and stable equilibria T and G. It is now more likely that there are no low-level equilibria, but only the equilibria U and G, and indeed it is also theoretically possible that qq' and nn' never meet so that there are no equilibria at all. This would mean that population is always growing faster than capital so that income per head declines continuously until the economy has run down to zero. All one can say is that the first positive equilibrium must be unstable; if this is at a high level of income, such as U, then the diagram teaches the lesson that the economy must somehow raise its income above the threshold at U where the decline in the birth-rate that has set in is sufficient to offset the decline in the death-rate and in the output-capital ratio. If the economy fails to do this, income per head will steadily decline.

VI. VARYING THE SAVINGS PROPENSITY FURTHER

So far the propensity to save has been assumed either to be constant or to change with total income per head. We now consider two further possibilities: first the propensity to save may vary with the relative price of capital-goods,

and second, it may vary with the distribution of income between profits and wages. We return to our original assumption that the rate of population growth is given and constant, and continue to assume that investment is brought into equality with savings through changes in the rate of interest.

One type of model allows the propensity to invest to vary inversely with the relative price of capital-goods.⁷ Suppose capital-goods become steadily more expensive relative to consumption-goods. This is likely to reduce the rate of growth of capital since the ratio of investment to output in real terms may decline. The explanation is that when capital-goods become relatively more expensive, more and more consumption-goods have to be sacrificed to obtain a given capital-good, thus reducing the amount of real investment for any given amount of real consumption. But is there any reason why the relative price of capital-goods should alter? One answer is that the rate of technical progress may be different in the industries producing capital-goods from that in the industries producing consumption-goods. Another is that capital-goods may be more or less labour-intensive than consumption-goods.

If, for example, capital is initially growing faster than labour, and if capital-goods are more labour-intensive, then the relative price of capital-goods will increase and the propensity to invest will fall. In addition, with capital growing faster than labour, the output-capital ratio in both the consumption-goods and the capital-goods sector will decline, and the fall in both the investment propensity and the output-capital ratio will cause the rate of growth of capital to fall and to approach the given rate of growth of labour. Thus the long-term dynamic equilibrium will be stable. On the other hand, if capital-goods were capital-intensive the investment propensity would increase; but the output-capital ratio would still decline, so that on balance the rate of growth of capital could fall or rise, and the long-term equilibrium could be stable or unstable.

We now proceed to another ingredient in some growth models. It is often assumed that the propensity to save out of profits is greater than that out of wages. There are special and more extreme versions of this general assumption; thus all profits may be saved and all wages consumed, or some profits may be saved and some consumed while all wages are consumed. Further, consumption out of profits may be a fixed amount or a given or varying proportion of profits.⁸ We must then ask what happens to the distribution of income between profits and wages. It is quite possible that the production function is such that, irrespective of whether capital or labour is growing faster, the distribution of income remains constant. If capital is growing faster, and provided prices of factors are determined by their marginal productivities, the price of capital (here identified with the rate of profit) will fall relative to the price of labour. But the total quantity of capital will be increasing relative to the total quantity of labour, so that on balance the share of aggregate income going to capital might well stay unchanged. (This would be a Cobb-Douglas function). On the other hand, the distribution of income might shift towards profits or wages, depending on the nature of the production function. So accordingly the growth curve of capital qq' will rise

7. This complication has been discussed by Mrs. Robinson in *The Accumulation of Capital*, *op. cit.*, in several essays in her *Collected Economic Papers Vol. II.*, (Oxford: Blackwell, 1960), and in T. W. Swan, *op. cit.*

8. See Joan Robinson, *The Accumulation of Capital*; N. Kaldor, "Alternative Theories of Distribution", *Review of Economic Studies*, XXIII, 2, 1955-56, pp. 83-100 and N. Kaldor, "A Model of Economic Growth", *Economic Journal*, LXVII, 268, December 1957, pp. 591-624.

or fall as one moves horizontally along the diagram in Figure I. But at this stage the model has become so complicated — and would be even more so if the rate of population growth again became a variable — that a geometric treatment really ceases to be adequate.⁹

So far we have assumed that the rate of interest ensures that investment reaches whatever level is necessary to equate it with the level of savings determined by the savings propensity. But other mechanisms may be envisaged. Mr. Kaldor has assumed that (a) investment is determined in some kind of independent way (by a 'technical progress function') and (b) savings are brought into equality with the investment so determined through changes in the distribution of income.¹⁰ The propensity to save out of profits is assumed to be greater than that out of wages, and the relationship between profits and wages alters appropriately to achieve the distribution of income necessary to yield the amount of aggregate savings required by the given investment. As the distribution of income varies so as to equate savings to investment, factor prices and hence income distribution cannot also depend on the marginal productivities of the factors of production. Thus Mr. Kaldor's assumption is quite a radical departure from neo-classical theory.

VII. THE KEYNESIAN MODEL

A completely different type of model, associated with the names of Harrod and Domar, does not allow either the rate of interest or the distribution of income to vary so as to equate savings and investment under full employment,¹¹ and hence focuses on the long-term aspects of the problem which Keynes analysed mainly with a short-term view. The literature on this model is so extensive that the discussion will not be pursued in any detail here. The aim is simply to point out where, on the whole, it appears to differ from the models discussed earlier.

The main difference is in the effective production function. The proportion between labour and capital is assumed to be fixed, or not readily variable, unless there is technical progress. The model assumes that the mechanism of changes in the prices of the factors of production (the wage rate and the rate of interest or profit) does not operate, or at least not fully, to induce the substitution between factors which may be necessary to maintain full employment. The fixed proportions are thus due, not necessarily to fixed technical coefficients, but to a failure in the price mechanism. Suppose labour is growing at 3% and capital at 4%; unless there is technical progress which alters the ratio in employment of labour to capital, some of the additional capital will not be absorbed. Similarly if the labour-force is growing faster than capital, some of the additional labour will be unemployed.

The further implications of these discrepancies in the rates of growth are then spelled out. The assumptions made in the simplest version of the Harrod-Domar model are, first, that the growth rate of labour is assumed constant,

9. A model of this type is presented mathematically in D. G. Champernowne, "Capital Accumulation and the Maintenance of Full Employment", *Economic Journal*, LXVIII, 270, June 1958, pp. 211-244.

10. N. Kaldor, "A Model of Economic Growth", *op. cit.*

11. R. F. Harrod, "An Essay in Dynamic Theory", *Economic Journal*, XLIX, 193, March 1939, pp. 14-33; R. F. Harrod, *Towards a Dynamic Economics*, London: MacMillan, 1948; E. D. Domar, *Essays in the Theory of Economic Growth*, New York: Oxford University Press, 1957.

second, that the propensity to save is assumed constant, and third, since the ratio of employed capital to labour is fixed (unless there is technical progress), the output-capital ratio remains constant. There is then really nothing to bring the model into equilibrium. If capital is growing at a slower rate than labour there will simply be more and more unemployment of labour, unless technical progress is labour-using. The model does not allow the supply of new labour to contract when some of the additional labour cannot be employed. On the other hand, when capital is growing at a faster rate than labour, at first stocks of capital-goods might accumulate but eventually investment declines. So the supply of new capital contracts when some capital cannot be employed. With falling investment, demand declines and there is a downward spiral of income, the creation of unutilised capital being avoided by creating unemployment of labour — unemployment which is due this time to lack of demand, not lack of complementary capital. Thus employment is really the variable in this model, just as the output-capital ratio, the output-labour ratio, the relative price of capital-goods, and the distribution of income are the variables in the earlier models described here.

VIII. ASSESSMENT

This paper is intended to be a contribution to understanding, not assessing the various models. But perhaps a few words about the limitations are called for.

First of all, there is the difficulty which has preoccupied Mrs. Robinson,¹² namely the meaning and measurement of 'capital'. As presented in our models above, capital is a physical concept; but with changes in techniques, tastes and relative prices how can different types of physical capital be aggregated? In principle it is just an index number problem, no different in kind though possibly greater in degree from that which bedevils, for example, the comparison of national income over time or between countries. One solution is to employ the aggregation techniques which index number theory teaches us; the other is to avoid the concept of 'capital' in an absolute sense altogether and express our theories only in terms of *increments* to capital — that is, investment, which can be measured or aggregated at current prices — and *incremental* rather than average output-capital ratios.

The second limitation is that this paper — and most of the models it describes — has focussed on the relationship between growth of capital, growth of labour and growth of output, and has referred only incidentally to other key elements in the growth process. Perhaps this is not quite just to the model-builders. In a very general sense most of them have incorporated a concept called technical progress, classified sometimes in terms of its 'biases'. But it will generally be admitted that the parts of the models dealing with technical progress are not as satisfactory as the analyses of the relationships between capital, labour and output growth rates. Economies of scale, including external economies — which play such an important part in the theories of another set of writers — also have been neglected. Further, it can be argued that the key element in the growth process is political and social organisation affecting especially the quality of labour and management. Perhaps it is true that capital does not really matter so much, and that progress is far more dependent on technical

12. See *The Accumulation of Capital*, *op. cit.* and *Collected Economic Papers Vol II.*, *op. cit.*

progress and on political and social conditions than on the propensity to invest. In that case indeed most of these models begin to appear somewhat unimportant.

A third limitation of the models described here is that all of them require disaggregating into several sectors to be of value. It is the assumption of a single sector or product which gives them their sad air of unreality. A friend, commenting on this paper, has written: "Y is eaten, slept on, worn, lived in, listened to, watched, driven in. . . . We would starve to death if economies were as poverty-stricken as the models used to describe them."

It is true that in all the models described here, except one, there has been only a single economic sector. The exception is the model which divides the economy between a sector producing consumption-goods and a sector producing capital-goods, the relative price between the two outputs varying. In addition, it has been pointed out that there is a model, Ricardian in origin, which has a subsistence (or primary) and a market (or secondary) sector, though this has not been discussed here. Furthermore, there are a number of theorists of economic growth who have actually made the relationship or 'balance' between economic sectors the central feature of their analysis. Compared to the theories described here, the literature on balanced and unbalanced growth has at least the air of reality even though it lacks logical precision.

Certainly it is not enough to have even three sectors, subsistence, marketed consumption-goods and capital-goods. Probably all the main industrial classifications should be treated separately. The capital-goods sector should at least be divided into fixed capital equipment and building and construction. Personal services should be an explicit sector, and foreign trade has to be introduced. Perhaps the best that can be said for these models is that in time, with further elaboration, they will enable an additional chapter to be written into the economic theory textbooks — a chapter subject to the same limitations, but also having the same value, as the chapter which expounds the 'laws' of supply and demand.

PRODUCTIVITY AND INCOME FROM RUBBER IN AN ESTABLISHED MALAY RESERVATION

By E. K. FISK*

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I. INTRODUCTION

In this article an attempt will be made to analyse the causes of poverty in a potentially rich rubber smallholding area in Malaya. The area considered is a Malay reservation in the *Mukim* of Batang Kali, in the District of Ulu Selangor, in which the Economic and Planning Division of the Rural and Industrial Development Authority, under the direction of the writer, undertook an investigation and survey during the latter half of 1959 and the first half of 1960. The facts ascertained in this investigation are set out in two papers¹ produced by the Economic and Planning Division of the Authority, and the writer is obliged to the authors of those two papers for permission to use some of the material reported by them. The analysis presented here, however, is new.

The area selected for study was an old established rubber area, made a Malay Reservation² in 1919-21, and occupied by Malays with a reputation for industry and hard work. The reservation contained about 1,600 acres, divided into about 500 lots, and further expansion of the reservation was restricted by estates to the north, south and east, and by the main trunk road to the west. There are three *kampongs*³ in the reservation, namely Kampong Sungei Masin, Kampong Genting Malik, and Kampong Kuantan.

The population of the reservation at the time of the survey taken from records kept by the *Pengbulu*⁴ was as follows:

| | <i>Sungei Masin</i> | <i>Genting Malik</i> | <i>Kuantan</i> | <i>Total</i> |
|------------------------------|---------------------|----------------------|----------------|--------------|
| Number of occupied houses | 89 | 38 | 54 | 181 |
| Population | 434 | 201 | 246 | 881 |

* The writer served as Economist to the Rural and Industrial Development Authority, and head of the Economic and Planning Division, from May 1958 to May 1960. The Rural and Industrial Development Authority is a public corporation, created and financed by the government of the Federation of Malaya, to undertake social and economic development in the rural areas.

1. See Arshad bin Ayub, *Report of Preliminary Investigation on certain economic aspects of Kampong Rubber Production at Kampong Genting Malik*, Ulu Selangor, Economic and Planning Division, Rural and Industrial Development Authority, Kuala Lumpur, Malaya, August 1959, and also Sallehuddin bin Mohamed, *Productivity Survey of Rubber Small-holding in Genting Malik*, Economic and Planning Division, Rural and Industrial Development Authority, Kuala Lumpur, May 1960.

2. The provisions of the Malay Reservations Enactment provide in effect that the interest in Malay owned land in a gazetted Malay Reservation may not be transferred to a person of non-Malay race.

3. A *kampung* is a Malay village or rural settlement.

4. The *Pengbulu* is the Government official in charge of the smallest administrative unit, the *mukim*. The *mukim* is somewhat analogous to the parish in British countries; it includes a number of villages, and plays an important part in land administration.

POTENTIAL PRODUCTIVITY AND INCOME

Of the total area under reservation, approximately 1,500 acres had been alienated for rubber smallholdings. According to the estimates of the Rubber Industry (Replanting) Board, yields from budded rubber under smallholding conditions should be from 700 to 800 pounds dry rubber content per acre per annum.⁵ With a full stand of such rubber on this reservation, the yield should be (taking an average of 750 pounds or about 565 kattis⁶ per acre per annum) about 847,000 kattis per annum for the whole reservation. This figure will be taken as the potential productivity of the area.

To assess the potential income of the area is more difficult, owing to fluctuations in the price of rubber, but for the purposes of this analysis, it will be sufficient to take the prices ruling at a period when prices were below average for the year. The date selected is 5th May 1959, for which full details of the prices ruling in the area were obtained by Inche Arshad bin Ayub, then Assistant Economist to the Rural and Industrial Development Authority. On that day, the average price offered by the three rubber dealers in the area was 110 cents per katti for No. 2 Ribbed Smoked Sheet, and 87.5 cents for unsmoked sheet.⁷ As the work of the Rubber Research Institute has amply proved, it is perfectly practicable for *kampung* producers to produce No. 2 ribbed smoked sheet with simple *kampung* processing units well within their means.⁸ Therefore, in assessing the potential income of the reservation the price of 110 cents per katti will be taken as a conservative estimate.

On this basis, the potential income of the reservation may be assessed as 847,000 kattis at 110 cents per katti, or a total income for the year of about \$930,000.

If these levels of productivity and income were achieved, and if the income was evenly distributed among the inhabitants of the reservation, the three *kampungs* would be very rich by Malayan standards, with an annual income of about \$5,140 per household, or about \$1,060 per head.

The actual situation is very different and there is considerable poverty in the *kampungs*. This is not only on account of the actual level of productivity being much lower than potential productivity, but also of a number of other factors that substantially reduce the income received by many of the smallholders in the reservation. These causes are examined below.

II. FACTORS CONTRIBUTING TO RURAL POVERTY

ACTUAL PRODUCTIVITY

The estimate of potential productivity was based on the assumption of a full stand of mature budded rubber in full production. These conditions do not apply to the present condition of the reservation.

5. See The Rubber Industry (Replanting) Board, *Report on Operations by the Chief Replanting Officer for the year 1958*, Kuala Lumpur, Caxton Press, May 1959, p. 13.

6. 1 katti = 1.33 lbs.

7. Arshad bin Ayub, *op.cit.*, Appendix B. All prices and values in this article are stated in Malayan dollars. M\$1 is equivalent to 2s 4d sterling or US\$0.33.

8. The Rubber Research Institute has encouraged the erection of simple rubber processing and smoking units in a number of villages in recent years. Using the simple methods taught by the Rubber Instructors, these units have produced a very high proportion of No. 2 Ribbed Smoked Sheet rubber. Some of the difficulties that have impeded the wider use of these methods are discussed briefly in a subsequent section.

INCOME FROM RUBBER IN A MALAY RESERVATION

First, at the time of the survey, it was found that only 63.6% of the total lots were in production.⁹ This reduces the area in production from 1,500 acres to about 950 acres.

Second, the trees are from unselected stock, un-budded, and include a substantial number of self seeded trees. Even in their prime, such trees would yield much less than the potential yield of selected budded rubber.

Third, the trees are old and approaching the end of their useful life. The estimated average age of trees in the reservation is about 35 years, and a considerable proportion are older. Where there are younger trees, they are mostly self seeded and of poor quality.

Fourth, the general standard of maintenance and tapping has been very poor indeed. Most of the lots are overgrown with lallang, kedudok and other weeds, and many of the trees have been slaughter tapped. The average stand of trees per acre in the surveyed lots was 152, of which 34 were no longer tappable even by *kampong* standards. Many of the trees still in production have so little bark left that ladders have to be used to reach the tapping panels.

Under these circumstances, the yield per acre in production is very low. It is difficult to assess exactly how low, for staff was not available to undertake quantitative observations over a long period, and the estimates of the operators and owners were for many reasons conflicting and unreliable. However, considering the condition of the lots in production, we may assume that average productivity would not be more than 60% of what a satisfactory stand of high-yielding budded rubber would produce, and for the purpose of analysis a figure of 340 kattis per acre per annum will be used. The fact that this is probably an over-estimate will strengthen the argument that follows.

On this basis, the actual gross productivity of the area at the time of the survey is assessed at 950 acres producing, on a maximum, 340 kattis dry rubber content per acre per annum. This gives a total of 323,000 kattis for the whole reservation, or about 38% of the potential productivity.

ACTUAL GROSS INCOME

The actual gross income from the sale of the rubber produced depends not only upon the quantity produced, but upon the grading of the rubber and its method of sale. At the time of the survey a co-operative processing shed and smoke-house had been built by a group of 26 smallholders and tappers in Kampong Genting Malik. This, however, had little practical effect on the price or quality of the rubber output of the reservation as a whole, as it was used regularly only by 7 producers.¹⁰

The reasons given for the failure to make full use of these facilities were many and various, but the most cogent appeared to be that the producers could not afford to wait the ten to fourteen days while the rubber was being smoked before selling. The fact remains that the majority of producers resident in the reservation were selling their rubber as unsmoked sheet.

Taking the conservative estimate of 80% for unsmoked sheet and the

9. Sallehuddin bin Mohamed, *op.cit.*, p.4. Table I. The survey was made on a random sample of 55 lots or 11% of the alienated rubber lots in the reservation.

10. Arshad bin Ayub, *op.cit.*, Appendix A.

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remaining 20% for No. 2 ribbed smoked sheet, the calculation of the gross income derived from rubber production in the reservation is shown below:

| | | | |
|------------------|----------------|--------------------|------------------|
| Unsmoked rubber | 258,000 kattis | 80% at 87.5 cents | \$226,000 |
| RSS No. 2 rubber | 65,000 kattis | 20% at 110.0 cents | 72,000 |
| Total | 323,000 kattis | 100% | <u>\$298,000</u> |

The revised income figure of \$298,000 is about 32% of that estimated as the potential income of the area. Even then, should this reduced estimate be uniformly distributed among the *kampung* residents of the reservation, they would be relatively prosperous since this would give an average annual income of about \$1,650 per household or \$340 per person. However, the actual income received by the residents is considerably less, for reasons outlined below.

OWNERSHIP OF LAND

There is sufficient rubber land in the reservation to permit every household in the area at the time of the survey to hold over 8 acres of land, equivalent to about 1.7 acres per person. However, in the investigation of Kampong Genting Malik it was found that 42% of the households owned no land whatever.¹¹ The reasons for this are given below:

- (i) Absentee ownership is common. An exact assessment of the number of absentee owners was not possible from the survey figures, as some of the registered owners could not be traced from the information available in the land office register or in the *kampungs*. However, it was clear that absentee ownership accounted for at least 20% of the lots surveyed, and possibly as much as 25%.¹² In this connection, absentee ownership is taken to refer only to owners who do not reside near the reservation, and Chinese or other owners who reside outside the reservation, but near enough to visit their holdings daily, are not included as absentee owners.
- (ii) Although the area was gazetted as a Malay reservation in 1919-21, this did not affect land held by non-Malay persons at the time. Much of this land has tended to remain in non-Malay hands, since once ownership is registered in the name of a Malay the restriction of interest and transferability under the Malay Reservations Enactment would reduce the market value of the land considerably. At the time of the survey (1960) 38% of the lots were owned by Chinese who were not resident in the reservation.¹³
- (iii) Aggregation of land has also taken place, both by resident and absentee owners, but owners were reluctant to discuss this aspect of their operations. It was therefore not possible to assess the extent of aggregation. Land office records were inadequate for this purpose, since not only were the names and addresses of many registered owners difficult to identify but some transactions and transfers had not been registered. However, as an indication, one of the owners interviewed was understood to own 7 lots in all, 4 of which were in

11. Arshad bin Ayub, *op.cit.*, p. 2.

12. Sallehuddin bin Mohamed, *op.cit.*, p. 9.

13. Sallehuddin bin Mohamed, *op.cit.*, p. 8. Table III.

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the survey area, while 13 of the 16 owners of lots which were being replanted at the time of the survey also owned other land within the reservation.¹⁴

OPERATION OF THE FARMS

At the time of the survey, 36.4% of the lots were not in production. Of the lots that were in production, only a very small proportion were being operated by the owners themselves, as shown in Table I.¹⁵

TABLE I. OPERATION OF THE PRODUCING FARMS

| Operated by | Per cent of all producing farms |
|------------------------|---------------------------------|
| Registered owner | 5.7 |
| Owner's relative | 14.4 |
| Tenant or sharecropper | 79.9 |

From this it is apparent that only a small proportion of the landowners in this reservation enjoy the full income from the land. The vast majority receive a rent or a share of the crop. The amount so received can be estimated approximately from the figures derived from the survey given in Table II.¹⁶

TABLE II. RENTS AND SHARECROPPING IN THE PRODUCING FARMS

| Type of agreement | Per cent of producing farms | Average rent per acre |
|--------------------|-----------------------------|---------------------------|
| Fixed rent in kind | 51.4 | 7 kattis rubber per month |
| Fixed rent in cash | 11.4 | \$7.10 per month |
| Sharecropping | 17.2 | 40% to 50% of crop |

For the purpose of analysis, we may consider the income received by owner operators and those whose land is operated by relatives as consisting of two parts, that is, income from ownership and income from operation. Assuming that the income from ownership is equivalent to a rent of 7 kattis of rubber per acre per month, we can estimate the total income deriving from ownership in the reservation, as shown in Table III.

14. Inche Arshad, in his investigation of Kampong Genting Malik, recorded 16 out of 38 households as owning no land, while 7 of the 38 owned 10 acres or more. The average size of a lot is about 3 acres. See Arshad bin Ayub, *op.cit.*, Appendix A.

15. Derived from data given in Sallehuddin bin Mohamed, *op.cit.*, Section IV.

16. *Ibid.*

TABLE III. INCOME FROM OWNERSHIP OF THE PRODUCING FARMS

| Group | Area affected | | Rent per acre per month | Gross income from ownership per month |
|-------------------------------|---------------|----------------------|-------------------------------|---|
| | Acres | Per cent of total | | |
| Owner or relative operated | 191 | 20.1 | 7 kattis | 1,340 kattis |
| Rent in kind | 488 | 51.4 | 7 kattis | 3,420 kattis |
| Rent in cash | 108 | 11.4 | \$7.10 | \$766 |
| Sharecropping | 163 | 17.2 | 45% crop =12.5 kattis | 2,140 kattis |

This gives a total income from ownership of the producing farms amounting to 6,900 kattis of rubber and \$766 in cash per month. The income may be converted into a cash equivalent on the same basis as that employed in calculating the actual total income from the sale of rubber, as follows:

| | | | |
|-----------------------------|--------------|--------------------|----------|
| Unsmoked rubber | 5,520 kattis | 80% at 87.5 cents | \$4,830 |
| RSS No. 2 rubber | 1,380 kattis | 20% at 110.0 cents | 1,520 |
| Rent in cash | | | 766 |
| Income from rent: per month | | | \$7,116 |
| per annum | | | \$85,400 |

The farms in production that were owned by Chinese comprised 11% of the total.¹⁷ Therefore in estimating annual income from ownership accruing to residents in the reservation 11%, representing income of Chinese owners, is deducted, leaving \$76,000. In addition, a further 20% of the balance represented income accruing to absentee owners. Thus the income from ownership in smallholdings which accrued to residents in the reservation amounted to only \$60,800.

We consider next the income from operation of the farms. This is the balance of the total income derived from rubber production, \$298,000, less ownership income \$85,400, thus giving a figure of \$212,600 for income from farm operations. A large proportion of this income is not retained in the reservation. In making an assessment of this proportion the only information available is the race of the farm operators. While it can be said that where the operator is Chinese he is not a resident of the reservation, it does not necessarily follow that where an operator is Malay he would be a resident. However, it will be assumed that the racial division of operators does coincide roughly with the division between residents and non-residents. On this basis, the estimate of income accruing to residents will, if anything, be too high — which is tantamount to understating the extent of rural poverty.

The survey revealed that of the total farms operated other than by owners, about 70% were operated by Chinese. Thus considerably over 50% of the

17. The proportion of Chinese owned farms in production is smaller than the proportion of total lots owned by the Chinese, because more than half of the Chinese owners were engaged in replanting their holdings.

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Malay owned farms were rented to Chinese operators from outside the reservation. The actual figures for all producing farms, (including owner operated and owners' family or relative operated) classified by the ethnic group of operators were as follows:¹⁸

| | |
|---------------------|-----|
| Operated by Malays | 37% |
| Operated by Chinese | 63% |

Therefore, of the gross income from operation of the farms of \$212,600, at least 63% or \$133,900 accrues to persons outside the reservation, and the residents retain at the most \$78,700.

INCOME OF RESIDENTS OF THE RESERVATION

It is now possible to estimate the actual income of the persons living in this Malay reservation. So far as income from the rubber smallholdings is concerned, the income of residents comprises:

| | |
|-----------------------|------------------|
| Income from ownership | \$60,800 |
| Income from operation | 78,700 |
| Total income | <u>\$139,500</u> |

This amounts to only 15% of the estimated potential gross income of the rubber smallholdings in the reservation; the average annual income per household is only \$770, and per head \$160, as compared with the corresponding potential income of \$5,140 and \$1,060 respectively.

Some of the underlying causes of poverty in this potentially rich Malay reservation are now becoming clear. However, this is not the full story. An annual income of \$160 per head is low enough,¹⁹ but this is an average figure and does not take into consideration the uneven distribution of income within the reservation. This inequality is considerable, as the number of landless families in Kampong Genting Malik indicate. Some of the families in the reservation in fact have incomes substantially below the average, *and are very poor indeed.*

III. PROGNOSIS

The future of this Malay reservation is closely tied to the question of replanting. The level of rubber production in it is at a low ebb on account of the age, poor quality and bad condition of the trees. Further, it is clear that most of the trees are near the end of their useful life. In the holdings now in production, the volume of output will continue to decline, and little can be done for the improvement of existing trees and land condition that would significantly raise productivity. Minor improvements might be achieved, and the tapping life of the trees slightly extended by more careful methods of tapping and by clearing the undergrowth but any such improvement would be small and temporary. The age and poor quality of the trees and the waste of bark reserves over the years are irreversible factors, and replanting constitutes the only effective remedy.

18. Sallehuddin bin Mohamed, *op.cit.*, p. 14 Table VII.

19. This is equivalent to approximately £18 14s sterling or US\$53.

The immediate causes of low productivity can only be removed by replanting with high yielding rubber. That this alone will not be enough to achieve and maintain productivity and income at the potential level is clear, but it is the essential first step — the *sine qua non*. However, replanting is fraught with an almost insuperable difficulty for the smallholder who owns little land, for in the replanting process old trees have to be eradicated before new trees can be planted and, further, the new trees take seven years to mature. It therefore involves foregoing the income from the land for seven to eight years. Where the smallholder's only asset and source of income is his land, there is a natural tendency for him to postpone replanting, and accept the consequences, so long as he can derive some income, however small, from the old trees.

The effect of this was brought out clearly in the survey. At the time of the survey, replanting operations had commenced on 29% of all the lots surveyed, although none had yet reached the tapping stage.²⁰ This may at first sight appear a satisfactory proportion, but as the time taken from the commencement of felling to the maturity of the rubber tree under *kampung* conditions is about eight years, this represents an average replanting rate of only 3½% per annum. Even assuming that the actual rate has doubled in recent years, and that that rate could be maintained, it would be nearly twenty years before there is full production with replanted rubber in the reservation. As virtually the whole of the existing rubber is already at the end of its useful life, this is by no means an encouraging prospect.

It is even more significant that 81% of the owners who had commenced replanting operations owned more than one lot, and could depend upon the income from other land until the new trees mature. The remaining 19% had other adequate sources of income and were not dependent on the land for their living.²¹ The replanting owners were, in fact, relatively well off; they were actively engaged in the process of land aggregation, and to them the replanted land was an investment and not a means of livelihood.

This problem of income from the holding is the major obstacle to replanting for smallholders, but there are other obstacles. The cost of replanting operations, though high, is not a serious difficulty, as a generous subsidy of \$600 per acre is available under the Smallholders Rubber Replanting Scheme to any smallholder in the reservation whose replanting conforms to certain specified standards.²² However, joint ownership is a frequent obstacle, both on account of the inability of the various owners to agree and the smallness of the interest and income of the individual joint owners. It is significant that 36.4% of the lots covered by the survey were jointly owned by more than one person, and a further 7.3% were registered in the names of trustees or representatives, so that up to 43.7% of all lots might have been subject to divided interest. On the other hand, only 6.2% of the lots being replanted were held under divided ownership.²³

This question of divided interest is of importance in more than one respect. Not only is it an obstacle to replanting, but it is also a stimulant to the process of land aggregation and to the widening of inequalities of income within the

20. Sallehuddin bin Mohamed, *op.cit.*, pp. 5 and 6.

21. *Ibid.*

22. The funds from which this subsidy is paid are derived in the main from a cess on the sale of rubber.

23. Sallehuddin bin Mohamed, *op.cit.*, p. 6.

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reservation. In this respect, the Islamic law of inheritance, which provides that the estate of a Muslim be divided between all members of the immediate family, is of importance. The survey revealed that only 26% of the Malay owned holdings were registered in the names of joint owners or trustees, which at first sight is surprising in a reservation that has been established for 40 years. This low figure is undoubtedly due in part to failure of inheritors to register the transfer of interest promptly, but that is by no means the full story.

In order to throw more light on this problem, twelve lots were selected for case studies in the history of ownership since the area was declared a reservation in 1919-21. Of these, eight lots were registered in the names of single owners, three lots had two joint owners each, and one lot had three joint owners. In two cases, the single owners were the original owners at the time when the reservation was established.

With the exception of the two lots still registered in the names of the original owners, all had at some stage been jointly owned, and in six cases the number of joint owners had reached three or more. It was clear that the increase in the number of joint owners, and the diminution in the size of the interests of individual owners, was a strong incentive to sell the land to someone in a position to purchase it as a composite unit. The new owners were naturally not the impoverished and landless in the reservation, but persons who already owned substantial income-producing holdings or who had other substantial sources of income.

Therefore both the problems of replanting and of divided ownership are tending to produce a transition in the economy from ownership of reservation land by small independent peasants resident in the reservation to a system of landlord and tenant. This transition is already well advanced with 79.9% of the lots operated on a tenancy or sharecropping basis, and with a substantial proportion of the resident families now owning no interest in land whatever. Under present conditions this trend may be expected to continue, and the rate of replanting appears likely to depend to a considerable extent upon the rate of aggregation of the individual holdings.²⁴

IV CONCLUSION

The Malay reservation in which this study was made is capable of supporting its Malay population at a very high level of income. The potential income from the rubber smallholdings in the reservation is of the order of \$5,140 per household per annum. In fact, the actual income received from rubber by the residents of the reservation is only about 15% of this potential income, or an average of about \$770 per household.

The underlying causes of rural poverty are summarised below:

- (i) Low productivity. Only 63.6% of the land was in production, on account of replanting operations on some lots, and total neglect on others. The land that was in production was producing at a very low level on account of the age, poor quality and bad condition of the trees.

24. The geographical situation of the reservation, bounded on all sides by estates and the main north-south road, limits the opportunities for new planting by residents of the reservation.

- (ii) Ownership of land within the reservation by non-Malays living outside the reservation. This accounts for 38% of the rubber land in the reservation.
- (iii) Ownership of land by absentee landlords. Of the Malay land owners, between 20% and 25% were absentee owners.
- (iv) Tenancy and sharecropping. Only 5.7% of the farms were operated by the registered owner, and a further 14.4% by members of the owner's immediate family. The balance, 79.9%, were operated on a tenancy or sharecropping basis.
- (v) Operation of the farms by outsiders. Although 62% of the farms were owned by Malays, only 37% of the Malay owned farms were operated by Malays, and over 50% of these farms had been rented to Chinese.
- (vi) Production of low grade unsmoked rubber. Unsmoked rubber sells at a price 20% below the price of RSS No. 2, which the smallholders are technically capable of producing. This is largely the result of poverty, as the producers cannot afford to wait while the rubber is being smoked before it is sold.

Replanting with high yielding rubber is the only solution to the problem of low productivity, and the age and condition of the existing trees make replanting a matter of great urgency. However, replanting is only practicable for the smallholder who owns several lots, or who has an alternative source of income. This difficulty constitutes a strong stimulus to the process of aggregation of land by a small number of relatively wealthy landlords.

Multiple ownership and divided interest in single lots is common, and provides not only a further obstacle to replanting but also a further stimulus to land aggregation.

Under these circumstances it must be concluded that the application of the Malay Reservations Enactment to this reservation, while preserving Malay ownership of much of the area, has not been effective as a means of promoting a sturdy, independent and relatively prosperous Malay peasantry living from the operation of its own land. On the contrary, disruptive social and economic factors are tending to produce a small number of Malay landlords renting their land to non-Malays from outside the reservation, and an increasing body of impoverished landless Malays living within the reservation. The Islamic law of inheritance, leading to multiple ownership of small lots, and the stark facts of the replanting problem, are tending to accelerate this process.

The situation is not beyond remedy, but the cure would require strong and possibly disagreeable medicine. One solution might be the compulsory acquisition of the land by a government agency, its replanting on a group basis using the residents of the reservation as hired labour, and the subsequent resale of the land to them on long term time payment, with restriction of interest to resident owner operators, along lines somewhat similar to the regulations adopted for new land by the Federal Land Development Authority Schemes. However, the detailed consideration of the merits and demerits of possible solutions to the problem would be a long and complex matter, involving political as well as social and economic factors. That is a problem of planning, rather than analysis, and is beyond the scope of this paper.

THE COMPETITION BETWEEN SYNTHETIC AND NATURAL RUBBER*

By T. R. McHALE

I

Meaningful economic analysis of competition between "synthetic rubber" and natural rubber can be made only in reference to a whole range of polymeric elastomers which have been or will be available to the processor or fabricator of "rubber" products. This article, written in the larger framework of the elastomer industry taken as a whole, will focus on three objectives: (1) canvassing the technical considerations which have determined the historic pattern of elastomer use; (2) analysing the economic impact and implications of technological development in the synthetic polymer field, particularly as they bear on changing patterns of consumption within the industry; and (3) suggesting critical technical and cost considerations which will have a major influence on the future pattern of industry development, and the long-term competitive place of natural rubber.

The history of synthetic rubber — natural rubber competition since the end of the Second World War has provided economists with an interesting case study of the close interplay between the technical and economic aspects of factor substitution in production. In any productive process, there are various degrees to which one factor of production can be substituted for another. Factor substitution sometimes takes the form of replacing labor with capital or vice versa. Or it may involve substitutes within a more restricted category such as oil or gas for coal in the production of power, or peanut oil for palm oil in the manufacture of margarine, or sugar beet instead of sugarcane in the manufacture of sugar. In the case of factor substitution between synthetic and natural rubber, the possibilities of technical substitution have undergone fundamental changes as new synthetics have emerged on the scene. We are dealing, therefore, with changing technical substitutes subsumed under the term "synthetic" rather than changing rates of substitution between two factors, each of which represents a homogenous factor over time.

The elasticity of substitution, or the ease with which one factor or raw material ingredient can be substituted for another, is exclusively a technical question relating to the particular character of the productive process and its unique technology. The process of substitution between two factors can be understood by outlining three possible situations: (1) where no substitution is possible between the two factors (either perfect complements or zero elasticity of substitution); (2) where some substitution is possible between the two factors (some elasticity of substitution); and (3) where the two factors are freely substitutable (perfect substitutes or infinite elasticity of substitution).

Any decision concerning factor substitution must consider the *economic* as well as the *technical* aspects of a given situation. Technical substitutability is a

* This article is based on a paper read before the University of Malaya Society in August 1960. The author wishes to acknowledge the valuable suggestions and criticisms provided by Dr. C. R. Wharton Jr. in the rewriting of the paper for publication.

necessary but not a sufficient condition for actual use in production. Economic substitutability, or the question of comparative factor costs, must also be introduced before a final decision whether or not to substitute can be reached.

Natural-synthetic rubber relationships have involved three zones up to the present time:

Zone A: where synthetic rubber enjoys a technical superiority and there is no competition from natural rubber;

Zone B: where natural rubber enjoys a technical superiority and there is no competition from synthetic rubber;

Zone C: where there is some degree of competition between the two.

In Zone C, the ultimate choice between synthetic or natural has revolved around price or cost considerations. If the cost of natural were lower than the cost of synthetic relative to the value of the final product, then natural was selected.¹ As we shall see, recent developments in the synthetic field threaten to virtually eliminate Zone B where natural enjoys a technical superiority, and to increase Zone C where there is competition between the two. In economic terms, recent developments in the synthetic field indicate that the elasticity of substitution between natural and synthetic will shortly become almost infinite. In lay terms, synthetic will become an almost perfect substitute for natural in all its uses. Hence, the economic question of comparative costs in the synthetic versus natural issue is likely to loom much larger in the future than in the past.

II

A basic requirement for our discussion of natural and synthetic rubber competition is an understanding of the technical characteristics of the products which give them value in use. At this technical level, so-called synthetic rubber can be compared and contrasted with natural rubber in terms of meeting specific functional requirements for flexibility, elasticity, abrasion resistance, permeability, weather resistance, heat conducting capacity, overall durability, ease of processing, or any combination of such technical qualities. The term "synthetic rubber" is, of course, a misnomer. As commonly used, the term is a generic catch-all covering five major and many minor polymers and co-polymers, each a discrete elastomer in itself. Included are co-polymerized butadiene and styrene (SBR rubber), polyisobutylene (Butyl Rubber), polychloroprene (Neoprene), co-polymerized butadiene and acrylonitrile ("Hycar", "Chemigum" or "Perbunan"), and polysulfides (Thiokol). Recently the synthesizing of stereo-regular *cis* polyisoprene and *cis*-butadiene on a commercial scale has added two significant new polymers to the list of synthetic rubbers; and a whole new range of stereo-specific polymers is likely to appear in the near future.² The polymers mentioned,

1. More strictly, a shift tends to take place when the ratio of the marginal value product of one factor to its marginal cost changes relative to the ratio of the marginal value product of the other factor to its marginal cost. Marginal factor cost reflects not only the supply cost of a factor but economies or diseconomies involved in its use. For example, new machinery or "change-over" costs are frequently associated with different factor substitutes in the elastomer field, and direct cost comparison per unit weight of synthetic and natural is not wholly reflective of the marginal factor cost of the competing products.

2. Stereo-regularity refers to the positional arrangement of the individual monomer molecules in the polymer chain. Such arrangements, as we will note in the text, have an important bearing on the physical characteristics of a polymer. The limits of substitutability between synthetic and natural rubber in the past have been related largely to the physical characteristics of synthetics which stemmed from their irregular monomer linkages in the polymer chain.

a number of less important ones (in a quantitative use sense), and various modifications and combinations thereof, are all commonly subsumed in the term "synthetic rubber". Both the chemical and physical properties as well as the range of application of "synthetics" extend over an extremely wide spectrum when compared with the natural rubber product of the *Hevea Brasiliensis* tree.

The fact that most of the so-called synthetic rubbers possess properties which permit their use in roles where natural rubber is technically not suited or inferior has often been overlooked in the discussions on natural-synthetic competition. It is therefore worthwhile to review examples where the technical superiority of synthetics over natural rubber has played an important part in the pattern of synthetic use.

The neoprene synthetic polymers possess superior resistance to heat, oil, most chlorinated hydrocarbons, and a large number of chemicals. As a result of these qualities, they have found widespread use in mechanical products such as hoses, conveyor belting and automotive parts, and in such uses as industrial gloves where resistance to grease, oil or solvents is desired. Neoprene synthetics also have excellent ageing and flame resistance properties which result in their use in safety aprons, bonded fibres, or foam products where long wear is sought. Butyl rubber is highly impermeable to most gases, and retains air many times more effectively than natural rubber. On the basis of this technical characteristic, Butyl rubber rapidly replaced natural rubber in inner tube manufacturing before the advent of tubeless tyres, and more recently has been used as an air sealant in tubeless tyres. Butyl rubber also has superior ozone and weathering characteristics, and does not harden or crack when exposed to heat and oxygen. Its use as a replacement for natural rubber in products exposed to such deteriorating factors is widespread. Perhaps the most important example of all is the superior abrasion resistance of the general purpose butadiene-styrene co-polymers. Their abrasion resistance is so significantly better than that of natural rubber that almost all automobile tyres manufactured today utilize "synthetic" treads made from butadiene-styrene rubber.

There is, of course, another side of the technical coin. Until very recently, natural rubber had a unique superiority over any of the commercially produced synthetic polymers in those uses where high resilience and low hysteretic qualities were necessary. In such products as aeroplane and heavy duty truck tyres, numerous mechanical goods and parts of ordinary car tyres, it is desirable to have an elastomer capable of high energy reversibility, i.e. when it is deformed it does not dissipate the energy input as heat but utilizes the energy to return to its initial pre-deformed shape. The superiority of natural rubber over all synthetic elastomers in this respect has been very pronounced largely as a result of what chemists referred to as the stereo-regularity of the natural rubber (isoprene) polymer. The fact that natural rubber is characterized by stereo-regularity in its polymer chain and that none of the synthetic polymerization processes could heretofore duplicate this characteristic positioning of the basic "building block" monomer, has been of fundamental significance in setting the historic use pattern of natural and synthetic rubber. In effect it meant that substitution of any of the synthetic elastomers for natural rubber in such above-mentioned specific uses as heavy duty tyres was not technically feasible. Since the tyre industry was, and still remains (but to a lesser degree) the single most important source of demand for rubber, the demand for natural rubber based on technical qualities rather than comparative costs has been extremely large.

Another area where natural rubber enjoyed a significant technical advantage over synthetic was in the latex product field. The largest and most rapidly expanding uses for elastomers since the Second World War have been in the field of latexes, used mainly for foam products. Until quite recently, it was not technically feasible to utilize large amounts of synthetic latex for foaming because synthetic latexes could not be made with high rubber solids content. The technical problem was one of colloid chemistry — the difficulty in getting a relatively high percentage of the tiny rubber particles suspended in a solution without making it a putty-like material. The result of attempts to obtain high solids in solution was invariably a poorly flowing product which was not only difficult but expensive to foam. This led to an almost complete dependence on natural rubber latex where ordinary foam rubber products were concerned.

III

Generalizing from the experience in the United States over several years, a rough division of "technical" demand for natural and synthetic elastomers was evolved in the trade and widely accepted. The division suggested was that natural rubber normally took about thirty per cent of the market and synthetics about thirty per cent on the basis of technical considerations. The remainder of the market was generally considered price competitive, with product substitution a matter of comparative costs.

The technical basis on which this division was established, however, no longer exists. Polymer chemists, after many years of work, finally discovered the means of controlling the regularity of monomer positioning in synthetic polymer chains. This technological breakthrough has probably been the most important since the original development of the synthetic polymerization technique itself. By controlling the specific position of monomer molecules in the polymer chain, a whole new generation of products which we have already referred to as stereo-regular polymers has arrived on the product horizon. Such stereo-regulars are now, or hold promise of, destroying the last bastion of technical superiority held by natural rubber.

The implications stemming from the development of the stereo-regular polymers are fundamental to any present day evaluation of the future of natural rubber. Cis 1, 4, polyisoprene, for example, is in effect an almost direct chemical duplication of natural rubber with similar resilience and low hysteretic properties. Commercialization of production of Cis 1, 4, polyisoprene has already taken place in Europe and the United States, and substantial quantities will probably be on the world market within the next few years. Another stereo-regular, Cis 1, 4, Butadiene, is also coming into commercial production. Yet this is only one phase of the picture. Other stereo-regulars are bound to follow in rapid succession, each with their own particular technical characteristics. While it will certainly take many years to develop both the technological means of commercially producing many of these and to develop techniques of utilizing such products, nevertheless there can be no doubt that the question is only one of speed and degree rather than one of direction.

In the realm of latex foam, recent technical developments have also led to new areas of possible technical substitution. The technological breakthrough in this field involves an additive to synthetic latex which makes possible free flowing, easy foaming "high solids" synthetic latex. Synthetics such as the

butadiene-styrene co-polymer are now for the first time substitutable for natural rubber in most fields in which they could not compete technically before.

On the basis of the recent developments in the field of polymer chemistry which we have outlined, it is obvious that the high degree of immunity from competition with synthetic polymers at the technical level enjoyed by natural rubber in the past no longer exists. Polymers that can be commercially synthesized are now, or shortly will be, technically substitutable for natural rubber in practically all of its present uses. On the other hand, synthetics are continuously expanding specialized technical markets of their own, most of which remain highly immune to natural rubber competition.³

IV

Our technical discussion is obviously only one facet of the picture. No user of natural rubber will switch to synthetic under normal circumstances merely on the basis of its technical substitutability. Cis-polyisoprene, for example, is perhaps best described as "synthetic natural rubber", since, to all intents and purposes it has the same physical and technical qualities as natural. With complete product substitution possibilities, the choice of using natural rubber or its direct synthetic counterparts for a particular product will depend on economic considerations. This being the case, it is necessary to examine the relative sales price and production cost prospects for the two products.

The most immediate assumption one would make concerning synthetic Cis 1, 4, polyisoprene and natural rubber is that they would tend to be sold in a free market economy on the same basis as other relatively homogenous products which possessed an elasticity of substitution approaching infinity. (Cane sugar and beet sugar provide a good analogy). Prices which consumers will be willing to pay for either will be roughly equal, plus or minus differentials in transport and handling costs. Since historical evidence and institutional factors related to the production and sale of synthetics suggest relatively stable prices for synthetic products, free market price movements for natural rubber — if tied to synthetic substitutes — are likely to develop a stability without parallel in the history of the rubber industry.

At the same time, the level of prices which buyers who wish to secure natural rubber technical characteristics in a free market situation would be willing to pay, will be determined by demand schedules interacting with a combined natural-synthetic supply schedule, rather than with a supply schedule of natural rubber alone. The combination supply schedule will certainly keep prices at a lower level than would be the case if the supply were to be obtained from natural output alone.

V

Assuming that market forces will tend to bring natural and counterpart synthetic rubber prices together, the next question is: what are the comparative cost prospects in the long run for natural rubber and synthetic polymers capable of direct product substitution? Long-term predictions are extremely dangerous

3. This article will not deal with the problem of "non-reversible substitution" in the elastomer industry since it is irrelevant to the main theme under discussion. Nevertheless, the fact that synthetics are gradually expanding markets in which natural rubber cannot compete on a technical level is a significant development within the industry.

to make in industries where technology and the productive arts are rapidly changing. Nevertheless, it is possible to isolate some of the most important economic characteristics of the natural and synthetic industries which appear certain to shape future developments.

In the natural rubber industry, the use of high yield clones, improved cultural practices, yield stimulants and better tapping techniques, holds promise of increasing substantially yields per tree and per unit area. There is also a better understanding of the rubber tree from the agronomic and physiological points of view, and growing knowledge of its relationship to soils and water. From an economic point of view, however, it is desirable to analyse the long-term production cost prospects largely in terms of the several discrete factor cost inputs which are involved in producing rubber.

While there is no certainty that factor proportions will remain static, there are strong indications that direct labor factor inputs, as a proportion of total factor costs in producing natural rubber, will remain both high and fairly steady over time. The mechanization of natural rubber production is not even a serious topic of conversation, and labor inputs in most estate operations are not likely to drop below fifty per cent of total factor costs, based on present cost levels. On the basis of absolute physical relationships, the natural rubber industry usually produces between one and one and a half tons per man year of estate labor. It is highly unlikely that this ratio will ever exceed two tons per man year of labor as long as each tree has to be individually tapped more than a hundred times a year.

This labor input component of total factor costs is important, as decreases in these costs, since they will come largely at the expense of reduced labor earnings, are not too likely in most rubber producing areas of the world. Increasing labor efficiency is possible but limited in scope; at the same time it is probable that pressure on wages will absorb any such increases in labor efficiency in plantation production. Also relevant is the fact that any natural rubber producing nation which undergoes rapid industrialization or development will have additional pressures placed on the wage structure and labor costs will tend to increase accordingly.

Perhaps the second most important factor input in producing natural rubber is administration. The large number of laborers, trees, latex cups, growth records, wage payments, welfare programs, and other elements involved in a typical natural rubber plantation complex, are a heavy and costly administrative burden. The prospects for lowering costs in this realm are difficult to assess but the likelihood is that they will be negligible over time. On small holdings, of course, there is no line of demarcation between administration and labor, and they must be considered one.

A third important factor input is land. The economist is essentially interested in land factor inputs per unit of output. It is within this field that the greatest cost reductions are likely in the long run. The development of high yielding clones and the fact that one eventually might be getting an average of two thousand pounds of rubber per year per acre whereas four to five hundred was considered a good average in the past, is bound to push physical land input significantly lower. Land prices, considered on the basis of opportunity costs, are likely to remain steady or, at least, not to increase appreciably in most major rubber producing areas. In some areas, including Malaya, rubber appears to be

the only important economic use of land, with the result that pressure on land prices as far as alternative uses of the land are concerned is almost non-existent.

VI

We can now compare the structure of factor costs in the production of natural rubber with that in the various synthetic polymers. The single most important difference in factor inputs characteristic of the synthetic polymer industry as a whole is the high capital equipment input and relatively low labor input per unit of production. The factor proportions vary with the different polymers, but it is unlikely that even the most labor intensive of the synthetics involves a labor cost input of over six or seven per cent of total cost, while capital inputs probably account for half of the total factor cost in integrated plants which manufacture the basic monomers as well as the polymers.⁴ The contrast in physical input-output relationships is particularly striking. Whereas one man year of labor produces between one and two tons of natural rubber, a man year of labor in the synthetic industry is related to five hundred to one thousand tons of output; and the output per man year input is constantly growing.

In addition to capital equipment, raw material input is an important production cost in the synthetic polymer industry. The raw materials for synthetic polymers vary, but the most important intermediate monomers, such as butadiene, styrene, butylene and acetone, are all generally capable of being synthesized from a basic coal, petroleum or natural gas hydrocarbon. Over the past several years, the growing world surpluses of coal and crude oils have led to a substantial lowering of prices for these products. Long-term cost prospects for synthetic polymer raw materials are now expected to remain stable or fall rather than increase.

The heavy capital intensity of synthetic production is directly tied to another characteristic of the industry: the substantial economies to scale involved in the production of synthetic polymers. Unlike the natural rubber industry, in which production can be organized on the basis of a high divisibility of production factors, efficient production of synthetic polymers requires large-size plant installations and high utilization of capacity. Synthetic polymer plants producing anywhere from fifty to three hundred thousand tons per year are typical, and maximum productive efficiency requires operations to be maintained at close to full capacity.

There are two economically significant implications that stem from these facts of economies to scale and limited divisibility of productive units in synthetic rubber production. The first is that increases in synthetic polymer capacity tend to be lumpy in size, whereas marginal increases in natural rubber productive capacity can be made in almost any magnitude. In synthetic polymers, the marginal units are invariably large, since they involve whole plants. The second is that once the historic cost of establishing a plant has been incurred, fixed capital costs are so high that strong economic reasons exist for continuing such plants in operation at high output levels. Because of low variable costs, high output provides a larger contribution to the recovery of sunk costs. While the same economic forces apply to natural rubber operations with sunk costs,

4. Integrated plants, like most of the large American plants, take basic raw materials such as natural gas or crude oil fractions and carry the production process first through the intermediate monomer stage (butadiene, isobutylene) before manufacturing the polymer itself.

variable costs in the latter are likely to be considerably higher than in integrated synthetic plants.

Other characteristics of the synthetic polymer industry should be noted as far as the economies of production are concerned. One is the critical time advantage which synthetic has over natural rubber in placing its product on the market. A rubber estate takes a minimum of six to seven years to come into production, but a synthetic plant can usually come on stream two years after the decision is made to build. Further, synthetic rubber production has advantages in that the plant can be strategically located in proximity to major sources of raw materials or major consumption areas, thus decreasing transport costs substantially.

Summary

This article has suggested that the organization of the elastomer industry, and prices for discrete elastomer products within it since the end of the Second World War, have been determined to a large degree by the range of technical substitutability of various synthetic polymers for natural rubber. Recent technological developments which make it possible to control monomer positioning in a polymer chain, and the emergence of stereo-regular polymers such as *cis*-isoprene and *cis*-butadiene, have introduced a significantly new dimension to the natural-synthetic relationship. Technical substitution possibilities of synthetic for natural rubber now seem virtually complete.

With the emergence, for the first time, of a comprehensive range of technical product substitution possibilities, instead of the limited range heretofore possible, the role of the relative costs involved in producing natural rubber and its synthetic counterpart now becomes the dominant variable in the long-term pattern of development. Comparative analysis of long-term cost prospects is difficult to make with any degree of certainty. However, the characteristic factor cost patterns of the competing products, and their capacity to respond to market forces efficiently, will undoubtedly play a critical determinant role in establishing the long-term competitive position of natural rubber and synthetic.

In looking at the two products, significant differences in their average cost structures are immediately apparent. Natural rubber production, for example, is characterized by heavy labor input per unit of output. Its synthetic counterpart is characterized by low labor input and high capital equipment input per unit of output. Natural rubber has almost no counterpart of the synthetic's raw material cost, but does have relatively heavy administration costs that are lacking in the production of synthetic.

The production of natural rubber can be organized in a variety of different ways and cost efficiency can be maintained at any of a wide range of productive firm sizes. The production of synthetic, on the other hand, involves highly indivisible costs in the form of capital equipment, and cost efficiency in production depends upon relatively large productive unit sizes and high utilization of available capacity.

Over time, therefore, the competitive positions of natural rubber and its synthetic counterparts will depend to a large extent on the movement of key factor costs unique to each rather than common to both. It is unlikely at this stage of agronomic and technological development, and at this stage of sunk costs, that either natural or synthetic will gain complete dominance over the other. At the

SYNTHETIC-NATURAL RUBBER COMPETITION

same time, it is also unlikely that the world's natural rubber industry will remain unscathed by the emergence of a new area of competition, and its future is probably less promising now than at any time in its history.

SOME CAUSES AND CONSEQUENCES OF ECONOMIC GROWTH IN JAPAN

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I. INTRODUCTION

The economic development of Japan since the Meiji Restoration in the nineteenth century has always attracted the attention of economists and planners. In particular, her rapid postwar recovery has excited the envy of those nations which are still in the underdeveloped stages, and in Japan itself the phenomenal rate of growth has often been regarded as an economic miracle. Few attempts, however, have been made to analyse the background and the various underlying factors behind this economic expansion, and where such studies have been attempted they have often been fragmentary and unsystematic.

The present article does not attempt to present a comprehensive analysis of the causes and consequences of Japan's economic growth. The analysis here is confined to a detailed study of two aspects of this growth: first, the postwar recovery factor and, second, capital concentration in the large corporations and its relation to growth and the dual economy, with the main focus on the postwar economic process. Particular reference will not be made to the important role of the export growth potential in achieving rapid domestic expansion, which studies are presented elsewhere.¹

II. A COMPARISON OF POSTWAR INTERNATIONAL GROWTH RATES

Before embarking on an analysis of Japan's high rate of growth, it will be useful to make a comparison of growth rates in the economies of various countries. Using United Nations data, we show in Table I the gross national product (or gross domestic product) growth rates in various countries for 1951-57, and in Table II the growth rates of industrial production in various countries for 1948-53 and 1953-58. In Table I, we find that for fifteen selected countries, the gross national product growth rate of Japan is the highest and surpasses even that of West Germany, which has also been exceptionally high. The countries listed in Table I are capitalist countries; the socialist nations have been excluded because of differences in the concept of national income. However, in Table II we have computed the industrial growth rates of 36 countries in terms of indexes of industrial production. These include not only the capitalist but also the socialist countries, and both the advanced and the underdeveloped countries. Again, among the industrialized capitalist countries, Japan's growth rate of industrial production is the highest for 1948-53 as well as for 1953-58. Its industrial

1. On the effects of the prewar long-term deterioration in the terms of trade on export growth, see M. Shinohara, *Growth and Cycles of the Japanese Economy*, Tokyo, Kinokuniya (to be published), and on the degree of undervaluation of the exchange rate, see M. Shinohara, "Relative Production Levels of Industrial Countries and their Growth Potentials", *Weltwirtschaftliches Archiv*, March 1961.

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growth rate is comparable with the growth rates of the socialist countries, including the Soviet Union.

Of course, among the underdeveloped countries included in Table II, some countries such as Pakistan exhibit higher growth rates. The explanation is that in such an underdeveloped stage the establishment of a single modern factory will often give a misleading figure of industrial expansion, while there is no corresponding improvement in real *per capita* income.

TABLE I. ANNUAL GROSS NATIONAL PRODUCT GROWTH RATES
IN VARIOUS COUNTRIES, 1951-57

| | (Per cent) | | (Per cent) |
|--------------|------------|----------------|------------|
| Japan | 7.76 | Puerto Rico | 4.06 |
| West Germany | 7.50 | Sweden | 3.80 |
| Greece | 6.82 | Luxemburg | 2.98 |
| Italy | 5.35 | United States | 2.93 |
| Netherlands | 5.25 | United Kingdom | 2.45 |
| France | 4.64 | Ireland | 1.50 |
| Canada | 4.21 | Argentina | 1.45 |
| Portugal | 4.12 | | |

Notes: (a) When gross domestic product at constant prices is available, GDP is given instead of real GNP.

(b) The growth rates have been computed by fitting a linear logarithmic equation.

Source: United Nations, *Yearbook of National Accounts Statistics*, 1958.

Apart from such considerations, the Japanese postwar expansion is still astonishing, and it could not have been anticipated that Japan would be able to accomplish such a remarkable economic recovery and progress within fifteen short years. So far, the targets of every long term economic plan have been underestimated, an indication of her high growth potential and unexpected vitality.

This should not be considered only a postwar phenomenon. Since the Meiji Restoration, the real national income growth rate has ranged between 4% and 5%, and although this is low compared with that in the postwar period, it still exceeded the growth rates of various other countries in the prewar period, as shown in Table III.

These figures merely emphasize the long-run growth potential of the Japanese economy. Thus, we must not be misled by the view that Japan's exceptionally high growth rate is due only to the postwar recovery factor, for secular factors are also involved, as well as short-run postwar factors. However, we will first discuss postwar reconstruction and recovery factors, and then proceed to the examination of secular factors.

III. POSTWAR RECOVERY FACTORS IN JAPAN

Even though Japan's plant and equipment were damaged in the war, certain economic assets remained undamaged, such as the labor force, levels of skill,

TABLE II. ANNUAL GROWTH RATES OF INDUSTRIAL PRODUCTION
IN VARIOUS COUNTRIES, 1948-53 AND 1953-58

| Industrialised Capitalist Countries | | | Underdeveloped Countries | | Socialist Countries | | | |
|-------------------------------------|------------|------------|--------------------------|------------|---------------------|----------------|------------|------------|
| | 1948-53 | 1953-58 | | 1948-53 | 1953-58 | | 1948-53 | 1953-58 |
| | (Per cent) | (Per cent) | | (Per cent) | (Per cent) | | (Per cent) | (Per cent) |
| Japan | 22.67 | 10.93 | Pakistan | 25.17 * | 13.63 | Hungary | 24.08 | 4.06 |
| West Germany | 20.72 | 8.46 | Taiwan | 20.11 | 8.30 | Rumania | 23.36 | 4.54 |
| Austria | 13.12 | 8.45 | Philippines | 14.10 ** | 11.20 | East Germany | 17.28 * | 8.46 |
| Italy | 10.03 | 7.43 | Greece | 13.97 | 8.50 | Czechoslovakia | 13.97 | 8.52 |
| Netherlands | 10.03 | 4.73 | Peru | 10.03 | 9.97 † | U.S.S.R. | 13.14 * | 11.76 †† |
| Ireland | 7.40 | 0.98 | Brazil | 7.64 | 6.65 †† | Bulgaria | 6.50 | 8.73 |
| Norway | 6.50 | 4.39 | Chile | 7.40 | 0.40 | Yugoslavia | 4.06 | 13.58 |
| Canada | 5.92 | 3.37 | Algeria | 6.50 | 8.73 | | | |
| Finland | 5.65 | 5.32 | Venezuela | 6.50 | 12.60 | | | |
| France | 5.65 | 7.86 | Mexico | 3.80 | 8.01 | | | |
| United States | 5.65 | 0.00 | India | 2.82 | 5.71 | | | |
| New Zealand | 4.56 | 4.73 | Arabia | 2.61 *** | 6.75 †† | | | |
| Sweden | 2.36 | 3.37 | Guatemala | 1.91 | 6.96 | | | |
| Belgium | 2.12 | 2.83 | Argentina | -0.99 | 3.80 | | | |
| Luxembourg | 2.12 | 3.89 | | | | | | |

Notes: (a) * 1950-53; ** 1949-53; *** 1951-53.

(b) † 1953-56; †† 1953-57.

(c) The growth rates have been computed by fitting a linear logarithmic equation.

Source: United Nations, *Patterns of Industrial Growth, 1938-1958*, New York, 1960.

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education and technology. Moreover, there remained a great deal of unused equipment after the war which became usable with the input of raw material and fuel — the bottlenecks of the period. Therefore, we could logically expect that in those countries in which production declined most sharply immediately after the war, recovery would be most rapid, and *vice versa*. In other words,

TABLE III. ANNUAL REAL NATIONAL INCOME GROWTH RATES
IN VARIOUS COUNTRIES, 1860-1913 AND 1913-38

| | 1860-1913 | 1913-38 | | 1860-1913 | 1913-38 |
|----------------|------------|------------|-------------|------------|------------|
| | (Per cent) | (Per cent) | | (Per cent) | (Per cent) |
| United States | 4.3 | 2.0 | Netherlands | 2.3 | 2.1 |
| Australia | 3.7 | 2.1 | Belgium | 2.2 | 1.0 |
| United Kingdom | 2.4 | 1.0 | Switzerland | 2.6 | 1.6 |
| France | 1.1 | 1.1 | Sweden | 2.0 | 1.9 |
| Germany | 3.0 | 1.3 | Norway | 2.3 | 1.9 |
| Denmark | 2.8 | 2.1 | Japan | 4.1 * | 4.5 |

Note: * 1878-1913.

Sources: (a) R. W. Goldsmith, "Financial Structure and Economic Growth in Advanced Countries," in *Capital Formation and Economic Growth*, Princeton, 1955, p. 115.

(b) The figures for Japan are based on data in Ohkawa and associates, *The Growth Rate of the Japanese Economy since 1878*, Tokyo, Kinokuniya, 1957.

we can find an inverse correlation in the various countries between the rates of decline in industrial production from the prewar to the immediate postwar level and the rates of recovery from the immediate postwar level.

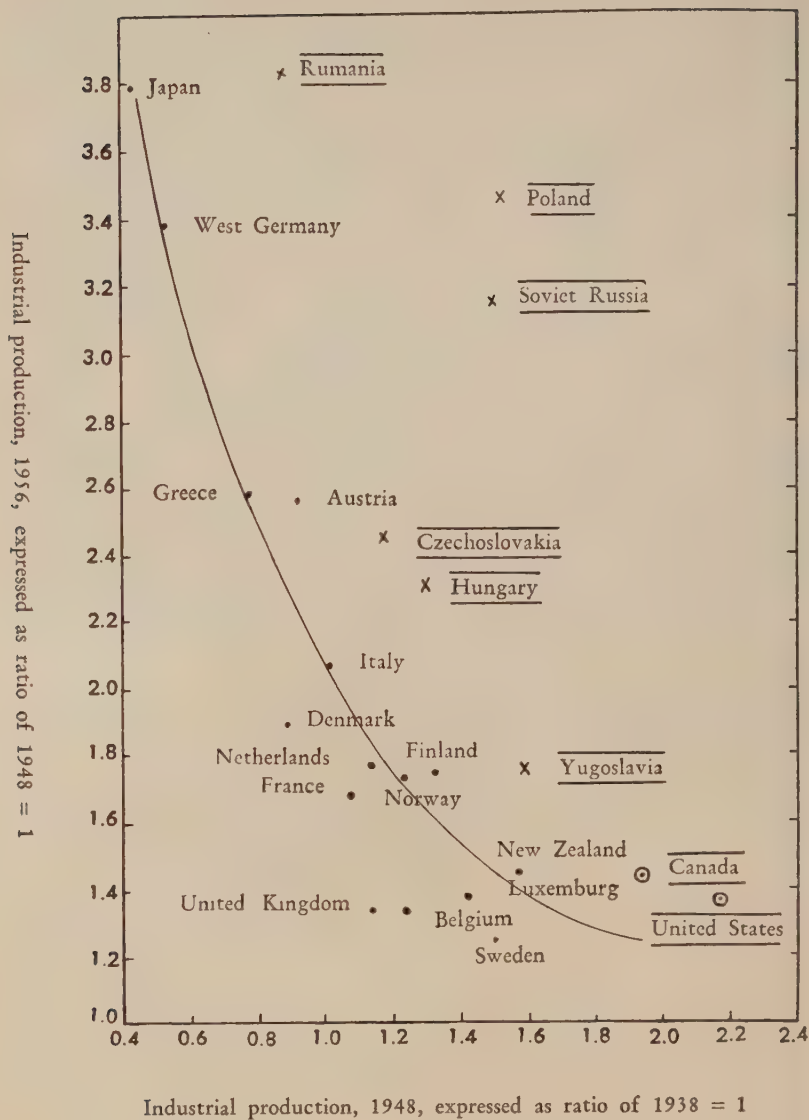
The chart on page 36 presents the above correlation for 23 countries.² Excluding the six socialist countries (Rumania, Poland, Soviet Union and Czechoslovakia, Hungary and Yugoslavia), the United States and Canada, there is a fairly clear inverse correlation between the rates of decline and the rates of recovery in industrial production. Those countries in which production declined most drastically, as in Japan and West Germany, also show the most rapid recovery after the war, whereas countries in which production declined least or even increased during the war years show the lowest rates of increase in the following period. Sweden, United Kingdom, Belgium, Luxemburg and New Zealand belong to this latter group.

The six socialist countries are exceptions to this empirical rule but this is understandable in view of the authoritarian planning in these countries to accelerate economic growth. This is why the socialist countries on the chart are scattered to the right of the downward-sloping curve.³ Canada and the United

2. The chart is a correlation between the change in industrial production in various countries in 1948 (expressed as a ratio of industrial production in 1938=1) and 1956 (expressed as a ratio of industrial production in 1948=1). A position to the left of 1 on the x axis indicates that the industrial production in 1948 did not come up to the 1938 level.

3. This curve has been drawn freehand.

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THE RELATION BETWEEN THE DECLINE AND THE RECOVERY
OF INDUSTRIAL PRODUCTION IN VARIOUS COUNTRIES

Source: United Nations, *Statistical Yearbook*, 1959

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States also seem to be exceptions, and this may be on account of the fact that these countries did not suffer any damage to their industrial plants and were in fact supplying Europe during the war, with a consequent expansion of their industrial capacity.

The above empirical rule is valid not only for changes in industrial production and real national product, but also for changes in exports as shown in Table IV.⁴ With the exception of France, Canada and the United States, the inverse correlation of decline and recovery in exports of various countries in the two respective periods is shown to be close.

TABLE IV. THE RELATION BETWEEN THE DECLINE AND RECOVERY OF EXPORTS IN VARIOUS COUNTRIES

| | Changes in exports (Earlier year = 1) * | |
|-------------------|---|--------------|
| | 1948/1937-39 | 1953-55/1948 |
| Japan | 0.08 | 6.80 |
| Germany | 0.20 | 5.55 |
| Netherlands | 0.63 | 3.29 |
| Denmark | 0.67 | 2.27 |
| Ireland | 0.72 | 1.80 |
| Norway | 0.78 | 1.59 |
| Italy | 0.79 | 1.67 |
| France | 0.89 | 2.44 |
| Belgium-Luxemburg | 0.91 | 1.62 |
| Turkey | 1.00 | 1.62 |
| Portugal | 1.01 | 1.55 |
| New Zealand | 1.23 | 1.06 |
| Malaya | 1.36 | 1.15 |
| Canada | 1.60 | 1.15 |
| United States | 1.93 | 1.22 |

Source: United Nations, *Statistical Yearbook*, 1959.

Casual consideration would suggest that in the postwar recovery phase, the marginal fixed capital-output ratio would be lower than in the later stages, since there would be greater unused capacity in the immediate postwar years and in order to increase output not as much fixed investment would be needed as in the later period.

It may be convenient for our analysis to divide the postwar expansion process into three stages: 1946-51, 1951-56 and 1956-59. The reason for this breakdown is explained in Table V. In the first stage, 1946-51, the ratio of private producers' durables to gross national product was about 8%; it rose to 11% in 1951-56 and 16% in 1956-59. This increase was not a gradual process but took

4. Table IV shows the change in exports in various countries in 1948 (expressed as a ratio of exports in 1937-39 = 1) and 1953-55 (expressed as a ratio of exports in 1948 = 1).

place by way of two distinct steps, thus dividing the entire postwar development into three stages. This division can also be seen in the total producers' durables-gross national product ratio; this is approximately 15% in the first, 19% in the second, and 24% in the third stage.

TABLE V. CHANGES IN THE RATIO OF PRODUCERS' DURABLES TO GROSS NATIONAL PRODUCT IN JAPAN, 1946-59

| Fiscal year | Private PD GNP | Total PD GNP |
|-------------|-------------------|-----------------|
| | (Per cent) | (Per cent) |
| 1946 | 7.8 | 13.4 |
| 1947 | 7.2 | 15.1 |
| 1948 | 7.9 | 14.9 |
| 1949 | 8.6 | 15.4 |
| 1950 | 9.9 | 16.0 |
| 1951 | 11.2 | 17.7 |
| 1952 | 11.6 | 18.8 |
| 1953 | 11.3 | 20.2 |
| 1954 | 10.2 | 18.3 |
| 1955 | 9.4 | 16.9 |
| 1956 | 14.7 | 22.0 |
| 1957 | 16.6 | 24.9 |
| 1958 | 15.8 | 24.5 |
| 1959 | 17.3 | 25.8 |

Notes: (a) Producers' durables in Japanese national income statistics include business construction, such as factories, buildings and dams, in addition to machinery and equipment.

(b) Total producers' durables include both private and public producers' durables.

(c) The fiscal year in Japan is from April 1 to March 31.

Source: Economic Planning Agency, *Kokuminshotoku Hakusho* (National Income Report, 1960).

The period 1946-51 is of a purely postwar recovery nature. Although a deflationary policy was temporarily enforced in 1949 through the implementation of the Dodge Plan,⁵ the entire period was characterized by normal postwar recovery, intermingled with a hyper-inflation which lasted to the end of the Korean Incident in 1951. During this period, industrial production rose sharply owing to the concentrated investment in key industries of the funds of the Reconstruction Finance Bank and the Counterpart Fund derived from American aid to Japan,⁶ the granting of price subsidies to basic commodities, and the priority given to key industries in the allocation of electricity, coal and steel. As the rate of capacity utilization, that is, the ratio of output to existing capacity, was low in this period, nearly all industries could raise production levels without requiring much equipment investment, as long as the supplies of basic raw materials (especially imported materials), fuels and electricity were available.

5. This was an economic stabilisation plan recommended by Mr. J. Dodge, an economic adviser to the Occupation authorities.

6. This is the local currency fund derived from the sale of United States aid goods.

The second period began with the mild recession after the Korean Incident, but production soon recovered and this recovery continued through the boom of 1953 to the so-called "Jimmu boom" in 1956.⁷ On account of the outbreak of the Korean war, the utilization rate of equipment was tremendously accelerated. In manufacturing industries, it increased from 53.1% in March 1950 to 73.2% in March 1951. The utilization rate was 74.3% in March 1953 and 83.0% in March 1956. In other words, it continued to increase but at a declining rate as compared with the experience of the first stage. The rise in special procurement demand⁸ after the start of the Korean Incident temporarily took the place of an endogenous increase of exports, but its subsequent decline compelled Japanese manufacturers to increase equipment investment and introduce new technology in order to strengthen the competitive power of their exports. This was part of the reason for the increase in the producers' durables-gross national product ratio in the second period.

This ratio continued to increase in the third stage, 1956-59. This period can be considered epochmaking, for a great many changes took place, not only in the method of production but also in the mode of life. Comparing 1959 with 1955, the index of production of manufacturing and mining rose by four-fifths while the production of electrical machinery increased by 4.6 times. The production index of consumer durables also increased by 4.4 times. The increase in the production of television sets, 21 times, electric washing machines, 2.6 times, and refrigerators, 18 times, are examples of output trends of some leading commodities. It is very probable that in this dynamic stage the ratio of producers' durables to gross national product will continue to rise to new levels.

It will be particularly interesting, against the economic background described above, to estimate the marginal fixed capital-output ratio corresponding to the above three stages. If we denote real producers' durables as PD and real gross national product as GNP, then the marginal fixed capital-output ratio is $PD/\Delta GNP$. This has a fixed relationship with the growth rate of GNP which can be indicated by the following identity

$$\frac{PD}{GNP} \bigg/ \frac{\Delta GNP}{GNP} \equiv \frac{PD}{\Delta GNP}$$

In other words, the ratio derived from dividing PD/GNP by the growth rate ($\Delta GNP/GNP$) is identically equal to the marginal fixed capital-output ratio, as given in Table VI.

It is clear from Table VI that the marginal fixed capital-output ratio, represented by either $\frac{a}{c}$ or $\frac{b}{c}$, rose very rapidly, comparing the first period with the second, but the increase in the third stage was relatively small. In the first stage the coefficient was very low, reflecting mainly the existence of surplus capacity immediately after the war; accordingly, the low level of the marginal fixed capital-output ratio indicates that the economy was still in the reconstruction and recovery phase. In the second stage, the $PD/\Delta GNP$ ratio increased, indicating that the unit investment requirements for incremental output had been pushed up as the rate of utilization of equipment increased. On the other hand, the further rise in the third stage was caused (as

7. Emperor Jimmu was the legendary founder of Japan.

8. This is United States Government expenditure in Japan for the procurement of Japanese goods and services.

TABLE VI. CHANGES IN THE MARGINAL FIXED CAPITAL-OUTPUT RATIO IN JAPAN, 1946-59

| | Private PD | Total PD | GNP | Marginal Fixed Capital- Output Ratio | |
|-----------|------------|------------|-----------------------|---|------------------------------|
| | GNP | GNP | Growth Rate (c) | $\left[\frac{a}{c} \right]$ | $\left[\frac{b}{c} \right]$ |
| | (a) | (b) | | | |
| | (Per cent) | (Per cent) | (Per cent) | | |
| 1946 - 51 | 8.8 | 15.4 | 11.2 | 0.79 | 1.38 |
| 1951 - 56 | 11.4 | 19.0 | 7.6 | 1.50 | 2.50 |
| 1956 - 59 | 16.1 | 24.3 | 9.0 | 1.79 | 2.70 |

Note: The GNP growth rate is computed by fitting a linear logarithmic equation for each period.

Source: Economic Planning Agency, *Kokuminshotoku Hakusho* (National Income Report, 1960).

already discussed) by the unprecedented technological revolution which took place within a very short period.

That the first stage belongs to the postwar recovery phase is evident, but what about the second and third stages? The 1957 White Paper stated that Japan had already passed the postwar recovery period. If we restrict our analysis to the rate of utilization of capacity, this statement would be valid. Some economists went so far as to assert that we were in the midst of "take-off", on the way to joining the fraternity of advanced countries. If the present rate of growth continues for the next ten years, it is expected that Japan will catch up with *per capita* income levels in European countries. However, if we look at the problem from a different angle, even the present stage of technological innovation can be considered a kind of postwar phenomenon. During the war, the introduction of new technology had been suppressed but the development of ability, education, skills, and know-how continued to advance. The gap between the actual state of technology and the potential power to employ the new technology had been widened, on the one hand, as had also the gap between Japanese technology and that of other industrialised countries, on the other. The technological progress in recent years can be said to have narrowed the gap considerably, and if this gap is further narrowed in the future, then one might presume that the rate of Japan's economic growth would be slowed down.

However, this assumption does not take into consideration the fact that the high rate of growth of the Japanese economy is attributable not only to such short-run factors but also to secular factors. There is also an urgent need to explore the secular mainsprings of her rapid growth.

IV. GROWTH, CAPITAL CONCENTRATION AND THE DUAL ECONOMY

We shall take up here one of the secular factors, capital concentration and the dual structure of the economy. Other secular factors, such as the competitive power of exports, will be discussed elsewhere.⁹

9. See M. Shinohara, *Growth and Cycles of the Japanese Economy*.

TABLE VII. WAGES OF TOTAL AND MALE WORKERS
IN MANUFACTURING FIRMS IN JAPAN, 1909 AND 1914

Unit: Sen. 100 sen = 1 yen

| | Size of firm by number of employees | | | | | | |
|------------------------------|-------------------------------------|------|------|------|-------|-------|-----------------|
| | 5 — | 10 — | 30 — | 50 — | 100 — | 500 — | 1,000 and above |
| Average daily wage (in sen): | | | | | | | |
| 1909 — All | 34.2 | 33.2 | 31.7 | 32.5 | 34.0 | 32.5 | 34.4 |
| Male | 43.0 | 46.0 | 47.7 | 49.4 | 50.5 | 49.4 | 53.5 |
| 1914 — All | 39.5 | 37.0 | 34.6 | 35.4 | 35.9 | 39.3 | 43.4 |
| Male | 47.2 | 50.2 | 51.3 | 53.8 | 55.5 | 57.0 | 65.5 |

Source: Estimates by M. Umemura and A. Nakamura based on data in Noshomusho, *Kojoto-keisobyo* (Summary of Factory Statistics); also available in Showadojinkai, ed., *Wagakuni Chinginkozo no Shitekikosatsu* (Historical Analysis of Japanese Wage Structure), p. 471.

The term 'dual economy' is often used to designate an economy in which modern (or capitalistic) large firms co-exist with pre-modern (or pre-capitalistic) medium and small firms, and in which there prevails enormous wage or income differentials not found in more advanced countries; there is also a polarization of output and employment in the very large and the very small firms respectively. In Japan this kind of dual structure did not exist in the Meiji period (1868-1912); wage differentials by size of firms were not as pronounced then as at the present time, as can be seen in Table VII. Further, the concentration of output in the large firms was not as conspicuous.

The extensive wage differentials which developed from the end of the Taisho period (1912-25) to the beginning of the Showa period (1925-) are shown in Table VIII. These wage differentials have been carried over almost intact into the postwar period. The gap was temporarily narrowed in the immediate postwar years, 1946-48, on account of the hyperinflation and drastically reduced living standards. However, apart from this temporary phenomenon, the sharp wage differentials of the early Showa period remain, as can be seen in Table IX.

In Table X, wage and productivity differentials by size of firm in Japan are compared with those in the United States and the United Kingdom. We can see that in the latter two more advanced countries the wage and productivity differentials are much smaller than in Japan. Such a phenomenon, of course, may not be peculiar to Japan, for the recent Censuses of Manufactures of Ceylon and India also suggest the existence of fairly steep wage and productivity differentials as a result of the vigorous industrialization programs undertaken in those countries. However, were it not for the promotion of industrialization through foreign aid, the dual structure in underdeveloped countries would not be so conspicuous, and the situation then would probably have resembled somewhat that of the early Meiji period in Japan.

TABLE VIII. WAGES OF ALL WORKERS IN MANUFACTURING
FIRMS IN TOKYO AND YOKOHAMA, 1932

| | Size of firm by amount of invested capital (in yen) | | | | | | | | | | Unit: Yen |
|-----------------------------------|---|-------|-------|---------|---------|---------|----------|----------|-----------|-------------------|-----------|
| | 1 — | 100 — | 500 — | 1,000 — | 2,000 — | 5,000 — | 10,000 — | 50,000 — | 100,000 — | 500,000 and above | |
| Average annual earnings (in yen): | | | | | | | | | | | |
| 1932 — Tokyo | 278.7 | 185.8 | 206.4 | 232.8 | 281.2 | 352.1 | 486.6 | 570.6 | 624.6 | 793.9 | |
| Yokohama | 121.1 | 158.5 | 178.4 | 241.3 | 297.3 | 373.5 | 445.4 | 560.7 | 671.7 | 771.5 | |

Source: Estimates by A. Nakamura based on data in *Kogyocbosasho* (Survey of Manufactures), 1932; also available in Showadojinkai, ed., *op. cit.*

TABLE IX. INDEX NUMBERS OF WAGES OF ALL WORKERS
IN MANUFACTURING FIRMS IN JAPAN, 1952-59

(Average wage in firms with 1,000 employees and above = 100)

| | Size of firm by number of employees | | | | | | |
|------|-------------------------------------|------|------|------|-------|-------|-------|
| | 1,000 and above | 4 — | 10 — | 30 — | 100 — | 200 — | 500 — |
| 1952 | 100.0 | 40.6 | 46.3 | 53.2 | 64.5 | 75.7 | 88.0 |
| 1953 | 100.0 | 41.7 | 46.8 | 54.4 | 63.5 | 73.8 | 85.3 |
| 1954 | 100.0 | 42.5 | 47.1 | 54.1 | 63.5 | 73.7 | 86.6 |
| 1955 | 100.0 | 39.9 | 44.2 | 50.7 | 59.1 | 69.4 | 79.2 |
| 1956 | 100.0 | 30.8 | 39.2 | 47.3 | 55.8 | 66.5 | 76.9 |
| 1957 | 100.0 | 29.8 | 38.8 | 47.3 | 55.5 | 65.3 | 76.1 |
| 1958 | 100.0 | — | — | 47.7 | 54.2 | 65.1 | 75.1 |
| 1959 | 100.0 | — | — | 50.1 | 56.7 | 66.5 | 76.8 |

Note: The average monthly wage in firms with 1,000 employees and above increased by nearly 60% in this period from 17,400 yen in 1952 to 27,700 yen in 1959.

Source: Ministry of International Trade and Industry, *Kogyotokeibyō* (Census of Manufactures), 1952-57, and its Preliminary Summaries for 1958-59.

Can we, then, construct a hypothesis to explain the economy's dual structure, or as Professor K. Ohkawa prefers to call it, the "differential employment structure"? It is generally believed that the labor market is not homogeneous in Japan and that it is typically divided into two spheres, one the labor market for the large firms and the other for the small firms. In the labor market for the large firms, the demand for labor is principally for the new graduates from schools and not for experienced job seekers. In this labor market, workers once hired are more or less employed permanently (known in Japan as 'life-time commitment'), and their wage or salary level is in proportion to the length of employment. In general, these workers are never dismissed. Moreover, the active labor unions in the large firms act as bulwarks, preventing the breakthrough of cheap labor from the other labor market. Since this labor market is never invaded by trespassers from the pool of disguised unemployment, the system of pegging wages and salaries to length of service, therefore, is firmly established and is not easily shaken.

On the other hand, in the labor market for the small firms, the new employee is not necessarily the new graduate; he may come from other firms, possibly bankrupt firms, through some personal connections or other placement methods. The pressure of overpopulation in this labor market is very strong, so the wage curve in relation to length of service is not as steep as in the large firms. This is confirmed by the statistical observation that the smaller the enterprise, the lower the wage level. Thus, the hypothesis which explains the existence of steep wage differentials depends on the analysis of the institutional aspects of the Japanese labor market which is typically separated into two spheres, and in

TABLE X. INDEX NUMBERS OF WAGES AND PRODUCTIVITY PER WORKER IN MANUFACTURING FIRMS IN JAPAN, UNITED KINGDOM AND UNITED STATES, VARIOUS YEARS

(Average wage and productivity in firms with 1,000 employees and above = 100)

| Size of firm by number of employees | Wage differentials | | | Productivity differentials (Value added per employee) | | |
|--|--------------------|-----------------------------|----------------------------|--|-----------------------------|----------------------------|
| | Japan (1957) | United Kingdom (1949) | United States (1947) | Japan (1957) | United Kingdom (1949) | United States (1947) |
| 1,000 and above | 100 | 100 | 100 | 100 | 100 | 100 |
| 1-3 (1-4) | 36 | — | 65* | 17 | — | 108* |
| 4-9 (5-9) | 40 | — | 73* | 23 | — | 90* |
| 10-19 (11-24) | 44 | 84* | 79 | 30 | 90* | 89 |
| 20-49 (25-49) | 48 | 83* | 84 | 36 | 92* | 93 |
| 50-99 | 52 | 84 | 86 | 46 | 94 | 91 |
| 100-199 (100-249) | 56 | 85 | 86* | 53 | 96 | 102* |
| 200-499 (250-499) | 66 | 86 | 88* | 68 | 97 | 104* |
| 500-999 | 76 | 89 | 90 | 85 | 98 | 105 |

Note: * indicates that the figures refer to the size of firms shown in parentheses.

Sources: Japan—Smaller Enterprise Agency, *Chushokigyo Kibonchosa* (Basic Survey on Small Enterprise), 1957; United Kingdom and United States—respective Censuses of Manufactures.

which labor mobility for regular employees exists only from large firms to small firms, but not in reverse.¹⁰

However, wages are determined not only by conditions in the labor market, but also by those prevailing in the other markets, such as, the capital and the product markets. In the product market, the prices of the competitive products of the smaller-scale enterprises have a greater downward flexibility in recessions, which to some extent increases the wage gap between large and small firms in a recession, since wages in the small firms will be affected by the decline in prices. This may partially account for the fact that in the period following World War I (1920-31) when prices continued to decline, the wage gap was considerably widened, as can be seen in Table VIII.

However, the role of the capital market seems to be more important. Given the sharp wage differentials, what makes it feasible for the large firms to pay higher wages? The answer probably lies in the higher productivity per worker in the large firms. Then, why are there such sharp productivity differentials between large and small firms? Productivity is a function of capital intensity, that is, capital input per unit of labor employed. Hence, the productivity differentials now in question can be traced back to differentials in capital intensity between

10. With this qualification, that large firms do employ the so-called "Rinji-ko" (or temporary employees) for lower wages, under the condition that they may be dismissed whenever the management deems it desirable. In Japan, the "Rinji-ko" group increases during the upswings of the business cycles, and sharply declines in the recessions.

firms. The final problem remains: what caused the capital-intensity differentials between firms to be so large?

Given such relationships, we conclude that the large capital intensity differentials (which are not found in advanced countries) may be due to the concentration of investment funds in the relatively large businesses. Before the war, our Zaibatsu¹¹ banks concentrated their loans and investments in the Zaibatsu enterprises within the same group or hierarchy. After the war, the Zaibatsu combinations were forcibly dissolved by the Occupation authorities, but after the conclusion of the peace negotiations they have been gradually restored to their original position. Thus, capital concentration in the large firms has not disappeared after the war. On the contrary, this tendency has been accentuated by the priority given in the allocation of public funds and the Counterpart Fund derived from American aid to Japan to large firms in the basic key industries, that is, coal, shipping, iron and steel and chemicals.

In addition, the recent developments caused by the technological revolution have made it necessary to revamp the business structure so as to build up a new hierarchy of corporations (often called the "Combinat"), whereby corporations in different industries, say, the chemical industry and the iron and steel industry, have been combined regionally, technically and financially in an integrated system. Such a movement may have broken the rigidity of the old Zaibatsu system to some extent and made for greater fluidity in the business world, but in general the new stage of the technological revolution has raised the capital-output ratio considerably. For instance, in the iron and steel industry, the introduction of the strip-mill has meant an increase in fixed capital investment per unit of output, and the transport of heavy equipment has necessitated the establishment of capital-intensive ancillary facilities, such as harbor facilities. In response to these developments, the concentration of capital in the larger firms may have been increased.

Such capital concentration may have accentuated the dual structure, but what has been its effect on economic growth? *Prima facie*, since this capital concentration has meant an increase in the capital-output ratio in a labor abundant economy, it might be considered a misuse of national resources and hence detrimental to growth. However, the recent upsurge of the machine industry, especially the electrical machine industry, has been made possible only by the preceding expansion and renovation of the iron and steel industry. This is similar to the situation in the early stages of industrialization, when the initial social overhead investments, such as road construction, establishment of railroads and the construction of hydro-electric dams stimulated the later growth of various industries. If such overhead investments can be recognized as contributing to economic growth, then in the present case the development of basic capital-intensive industries, such as iron and steel, should also be looked upon as stimulants to accelerated growth. The problem is then not a choice between capital-intensive or labor-intensive industries, but how to make them complement each other. In this sense, the investment concentration in the large-scale firms, which will introduce new technology into these firms, would be growth-accelerating, rather than growth-deterrent, from the long-run point of view. And this seems to have been the Japanese experience.

11. This can be literally translated as the 'money clique'. It is a generic term to describe the very large vertically integrated trust corporations that dominated the Japanese economy before the Second World War.

Capital concentration has in this way stimulated industrial growth, but at the same time it has to a large extent been responsible for intensifying the dual structure, widening the gaps in capital intensity, productivity and wages between large and small firms. Thus capital concentration not only directly contributes to growth, it also increases the rate of growth indirectly through the creation of a dual economic structure. The existence of the dual economy makes it possible for the relatively large firms to employ cheap labor¹² in combination with highly advanced technological production methods. The combination of cheap labor and high-level technology tends to reduce costs and raise profits, thus leading to greater capital financing from internal funds, on the one hand, and a lowering of product prices, on the other, which in turn helps to expand the foreign market.

This is an interpretation based mainly on Japanese experience and may not be applicable to present underdeveloped economies. However, semi-developed countries, such as Japan, find it necessary to import and adopt highly advanced technology in order to compete in the world export market. In order to catch up with the advanced countries, a semi-developed country must achieve a greater than average growth rate, compared with other countries. The only practicable method to achieve a higher growth rate is to push up the export growth rate beyond the world average. But the raising of the export growth rate in such an economy may be possible (and actually has been possible in the Japanese case) only through a combination of advanced technological know-how and cheap labor. Again, this may not be a solution for the present underdeveloped countries where other complex problems exist.

Thus capital concentration may have been one of the most important secular causes of Japan's economic growth. But a weakness in this hypothesis is that capital concentration is not a monopoly of Japan. It also exists in advanced countries and it may be argued that capital concentration alone does not appear a sufficient explanation for the sharp dual structure.

The answer to this argument is that in the present advanced economies there is a developed capital market for stocks and bonds, and a large part of the fixed investment is financed internally. Capital concentration in such an economy is thus a concentration through "direct financing." However, in Japan, not only in the prewar but also in the postwar period, the chief method of financing fixed investment is through bank loans. In this sense, the method of financing in Japan is sometimes referred to as "indirect financing", for the allocation of deposit funds to firms is now entrusted to the banks. The problem is that banks are governed by a conservative policy in the lending or investing of funds at their disposal and necessarily favor loans to large firms which carry less risk. Thus, in the advanced countries, the concentration of capital is often restricted to the narrow limits of owned capital. However, in Japan, capital concentration develops on the basis of a much larger pool of funds, and the proportion of funds concentrated in large firms is far greater in Japan than in the advanced countries. This concentration may have supplied the essential stimulus to economic expansion.

We have previously referred to the increasing producers' durables-gross national product ratio in the postwar period, shown in Table V. This development appeared to have been essential for the extraordinarily rapid expansion in the postwar period. If this is so, the institutional framework through which the

12. That is, relative to labour costs in more advanced countries.

ECONOMIC GROWTH IN JAPAN

tremendous pool of funds collected in the commercial banks are piped to big business plays a crucial role in the rapid expansion. The credit created through the Bank of Japan is also relevant in this context since this credit supports the rapid rate of investment, and the important role of the so-called "overloans" (that is, the excessive dependence of commercial banks on the central bank) should also be recognized.

V. A NOTE ON THE PATTERN OF CAPITAL FORMATION IN A DUAL ECONOMY

As already noted, this article does not aim at a comprehensive analysis of the causes and consequences of Japan's economic growth. But we would like to discuss a special point that arises from our analysis. The problem is that if large firms have a decided advantage in obtaining investment funds from the banks, then how do small firms expand their output, paralleling the increase in production of the large firms? One theory concerning capital concentration suggests that as capital concentration proceeds, the proportion of small firms will gradually be reduced through unequal competition with the large firms. However, this has not been the experience in postwar Japan. Utilizing the Census of Manufactures, we can compute the ratio of expansion of manufacturers' shipments by size of establishment. The rates of increase in shipments for 1950-56 were 137% for firms with 4-29 employees, 164% for firms with 30-49 employees, 179% for firms with 50-99 employees, 170% for firms with 100-199

TABLE XI. THE PROPORTION OF SECOND-HAND FIXED ASSETS
IN TOTAL PURCHASES OF FIXED ASSETS IN MANUFACTURING
FIRMS IN JAPAN, 1954-59

| Size of firms by number of employees | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 |
|--|------------|------------|------------|------------|------------|------------|
| | (Per cent) | (Per cent) | (Per cent) | (Per cent) | (Per cent) | (Per cent) |
| 4- | 48.8 | 40.2 | 34.3 | 41.0 | — | — |
| 10- | 44.1 | 40.8 | 29.9 | 35.0 | — | — |
| 20- | 39.5 | 34.3 | 28.7 | 30.5 | — | — |
| 30- | 35.0 | 28.9 | 26.1 | 26.4 | 26.5 | 20.5 |
| 50- | 31.5 | 22.0 | 22.3 | 22.1 | 20.9 | 17.1 |
| 100- | 23.0 | 16.3 | 16.8 | 15.2 | 13.8 | 12.8 |
| 200- | 15.2 | 9.1 | 9.9 | 9.3 | 10.0 | 9.5 |
| 300- | 13.9 | 10.1 | 9.1 | 7.4 | 7.6 | 7.6 |
| 500- | 11.2 | 5.2 | 4.2 | 4.6 | 6.3 | 9.6 |
| 1,000 and above | 4.6 | 4.1 | 4.9 | 3.3 | 3.1 | 4.1 |
| Total | 18.3 | 14.3 | 12.3 | 10.9 | — | — |

Source: The Ministry of International Trade and Industry, *Kogyotokeihyo*, (Census of Manufactures), 1954-57, and its Preliminary Summaries for 1958-59.

employees, and 174% for firms with over 200 employees. This suggests a simultaneous expansion of big, medium and small firms, and that one group has not developed exclusively at the expense of the others. This may be on account of the fact that there is an intimate relationship between the large and small firms in Japan, for example, through sub-contracts and production of parts. Recently, the vertical hierarchy of big and medium-sized firms has also been strengthened. Therefore, the expansion of big business has meant a parallel expansion of small and medium-scale firms. Large firms find it profitable to use parts produced by cheap labor in the smaller firms; in other cases, the large firms produce primary products such as steel or cotton thread while the smaller firms manufacture secondary products such as machinery or clothing. The problem remains — how do small firms which are handicapped in borrowing from banks finance their necessary investment in order to keep pace with the big corporations.

The answer is suggested in Table XI, where the proportion of used fixed assets in total purchases of fixed assets are computed for 1954-59 from the Census of Manufactures. In the smallest firms, with 4-9 employees, this ratio ranges from 34% to 49%. As the value of the used machinery is computed on the basis of resale prices, it is expected that the valuation of used equipment is extremely low relative to their physical productivity. The investment in used fixed assets, in *physical terms*, would constitute a much larger percentage, perhaps as high as 80%, in these small firms. In the Japanese economy, used machines discarded by the large firms are not destined for the scrap heap; they find a ready demand for their services in the small firms. This is a vital aspect of capital accumulation in a dual economy.

VI. CONCLUSION

We have dealt with, in some detail, two factors which have contributed to Japan's economic growth. The first is the postwar recovery factor, which is indicated by the close inverse correlation between the rates of decline and recovery in industrial production and exports in various countries. The second factor is a secular one, that is, capital concentration and the dual economy. Had Japan's rapid economic growth been accounted for by the postwar recovery factor alone, then a gradual slowing down of the growth rate can be expected. The second factor, however, is a long-term phenomenon which may well contribute to a maintenance of the high growth rate, insofar as the dual economy will remain an integral part of Japan's economic structure, despite the decline in the rate of increase in the labor force.

These factors, of course, are not a sufficient explanation of the high rate of growth, though they constitute two of the most important ingredients. Other contributory causes, such as the export growth potential, the high savings ratio, entrepreneurial behaviour, the industry of her people, and other economic as well as social factors have also played a vital role.

LAND REFORM AND AGRICULTURAL DEVELOPMENT IN TAIWAN

By H. S. TANG *and* S. C. HSIEH*

I. INTRODUCTION

Land reform is no panacea for all agricultural problems. But it promotes agricultural progress in two respects. Firstly, it creates a more rational distribution of agricultural income between various groups of investors and producers and, secondly, productivity is increased through the release of unused resources of land and population.

The agriculture of Taiwan, before the implementation of the land reform program in 1949, was faced with certain basic problems. Among these the scarcity of farm land had long been the most serious. With the increasing agricultural population the farmers had to cultivate their small plots of land in the face of an underemployed labour force and a shortage of capital. Under these conditions there had developed an irrational system of land tenure under which serious disputes between landlord and tenant often arose. The average farm rental was fixed at approximately 50% of the total annual main crop yield; in extreme cases it was as high as 70%. In addition to the high rent the tenant often had to pay the landlord 'key money' for the renewal of the lease. Further, the lease had no definite period and might be terminated by the landlord at any time. Most contracts were made verbally, and only in exceptional cases were they put into written form.

With the limited farm land and the irrational tenure system, rural under-employment presented a serious problem. The cash income from farming was often insufficient to cover living expenses and farmers and farm labourers depended on additional income from off-farm employment. Technological improvements were confined to seed improvement, increased fertilizer input and intensified pest and disease control. Low income, low capital input, surplus labour and the small size of farms constituted the major obstacles to the introduction of modern techniques in agriculture in Taiwan.

In order to seek a solution to some of the above problems and lay the foundation for future agricultural development, the government in 1949 set out to implement the rent reduction and the land-to-the-tiller programs. They were aimed at terminating the traditional land tenure system and raising the farmers' standard of living.

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II. THE IMPLEMENTATION OF LAND REFORM

The land reform carried out in Taiwan consisted of two phases: the reduction of the exorbitant rents on private tenanted land and secondly, the sale of public cultivated land and the compulsory purchase of private holdings in excess of a maximum limit and their resale to tenant farmers.

RENT REDUCTION PROGRAM

In 1949 Taiwan had 260,000 hectares of private farm holdings under tenancy. In order to alleviate the tenant farmers' distress on account of high rents, the government established in 1949 a new and uniform rental rate for all private tenanted land of 37.5% of the annual main crop yield on the farm. All farm land was classified into 26 grades according to their productivity. A standard amount of productivity was assigned to each plot of land on the basis of which the reduced rent was fixed. In addition, a new farm lease contract was concluded between landlord and tenant to replace the old contracts and the tenure of lease was lengthened to 6 years. This policy was enforced for all 260,000 hectares of private tenanted holdings and some 300,000 tenant families benefited directly from these measures. The tenant farmer's income was increased, his security of tenure protected and the landlord's right of ejecting tenants and disposing of the land was restricted. These led to a fall in the market value of tenanted land and thus encouraged tenant farmers to purchase tenanted land with their own savings. From 1949 to 1953 a total of 35,000 hectares of tenanted land were purchased directly from landlords by some 66,000 tenants.

LAND-TO-THE-TILLER PROGRAM

The land-to-the-tiller program was undertaken in two steps. The first was to sell public land to tenant farmers and the second was to redistribute the 'excessive' private tenanted land to tenant farmers. Both steps were aimed at eliminating farm tenancy on the one hand and establishing owner farmers on the other.

In 1949 Taiwan had a total of 180,000 hectares of public owned land, which had been taken over originally from Japanese settlers and corporations. The sale of public land commenced in 1951 and sales also took place in 1952, 1953 and 1958; some 71,000 hectares in all were sold to 140,000 tenant farmers. The sale price was set at two and a half times the crop yield and was payable in twenty instalments over a period of ten years. Each farmer purchased an average of one-half hectare to two hectares of paddy field or one to four hectares of dry land. A further 30,000 hectares were put up for sale in 1959.

Along with the sale of public land, the government also redistributed excessive private land. Legislation enacted under the land-to-the-tiller program set a maximum limit of three hectares of medium grade paddy field or its equivalent to private farm holdings. Holdings exceeding this limit which were tilled by tenants were compulsorily purchased by the government and resold to the tenants. The purchase price was fixed at two and a half times the crop yield; the government paid 70% of the purchase price in commodity bonds and the remaining 30% in stocks in four government industries. The government in turn recoups two instalments of the resale price from the farmer each year; these were payable in kind. A total of 140,000 hectares of excessive land were thus purchased from landlords and resold to 200,000 tenant families at a total price of 1,272,000 metric tons of rice and 433,000 metric tons of sweet potatoes.

After the implementation of the land-to-the-tiller program, there were still 90,000 hectares of land under tenancy comprising some 140,000 tenants and part-tenants. To further its policy the government initiated in 1957 a land purchase program with a special fund of NT\$200m. This measure authorises local governments to assist local farmers with government loans to purchase land retained by landlords. The amount of loan ranges from 20% to 60% of the purchase price and the loan is redeemable within five to ten years at 5% interest per annum. With this further measure the government expects to see the fulfilment of its policy to transfer the ownership of all farming land to the actual tillers in the near future.

III. THE IMPACT OF LAND REFORM ON AGRICULTURAL DEVELOPMENT

CHANGES IN THE AGRARIAN STRUCTURE

The implementation of the government land policy have brought about far reaching changes in the agrarian structure.

Changes in tenancy

Before 1949 39% of the total farm families in Taiwan were tenant farmers. The implementation of the land-to-the-tiller program reduced the number of tenant farmers to only 17% of the total in 1957.

Changes in the number of owner farmers were accompanied by a change in the acreage of owner cultivated land. Of a total area of 680,000 hectares of private cultivated land, the proportion cultivated by owner farmers was increased from 61% to 85%.

Since farm ownership contributes to farm security and productivity, increased farm ownership and the establishment of the family farm system will undoubtedly contribute to agricultural prosperity and social as well as economic progress in Taiwan.

Changes in size of land holdings

Another important change is in the size of individual land holdings. After the implementation of the land-to-the-tiller program, the proportion of holdings whose size was under three hectares was increased from 58% to 77% of total private farm land while that of holdings whose size was three hectares and above was reduced from 42% to 23%.

The above trend can also be noted in the figures for landowner (including owner farmer) families. Before 1952 there were about 610,000 landowner families; 93% owned land which were under three hectares. In 1955 the number of landowner families had increased to 790,000 families, of which 96% owned land under three hectares.

CHANGES IN THE AGRICULTURAL ECONOMY

Increase in wage income for farm family labour

During the period 1950 to 1955 there was a three-fold increase in total gross farm income, mainly on account of increases in agricultural output. Total net farm income also increased by nearly three and a half times.

These changes were accompanied by a change in the pattern of farm income distribution. Comparing 1955 with 1950, wage payments as a proportion of total farm income increased significantly in importance. This is wholly attributable to wages paid for the services of farm family labour, since wages paid to hired farm labour showed a proportionate decrease. Rents paid to landlords also declined in relative importance in this period. The rent reduction and the increase in number of owner farmers have resulted in transferring a substantially increased share of the agricultural product to owner farmers and their families.

Increase in consumption expenditure

Accompanying the substantial increase in total farm family income between 1950 and 1955, the average propensity to consume (measured by the ratio of consumption to total farm family income) also increased from 86% to 90% in the two respective years. But this increased consumption was in non-farm products only; the proportion of total farm family income expended on farm products fell from 43% in 1950 to 40% in 1955. The increased expenditure on non-agricultural products is evidence of the improvement in farmers' living standards.

The other aspect of the increase in consumption is the fall in the savings ratio (measured by the ratio of savings to total farm family income) from 14% in 1950 to 10% in 1955. This has resulted in a relative decline in agricultural investment.

Changes in the investment pattern

Total agricultural investment in 1950 was NT\$527m. and in 1955 had increased to NT\$1,119m. Though investment had more than doubled between these two years, the rate of increase was considerably less than that in net farm income in the same period.

In 1955 farmers paid NT\$240m. for land purchased under the land reform program. Comparing 1955 with 1950 farmers' savings played a smaller role in agricultural investment whereas public investment had increased in relative importance. The following table shows the percentage distribution of the various sources of investment funds in 1950 and 1955:

| <i>Sources of investment funds</i> | 1950 | 1955 |
|------------------------------------|--------------------|------|
| | <i>Percentages</i> | |
| Public investment | 18 | 25 |
| Farmers' savings | 51 | 32 |
| Payment for land purchases | - | 21 |
| Depreciation allowances | 31 | 22 |
| | --- | --- |
| Total investment | 100 | 100 |
| | --- | --- |

There were also changes in the allocation of investment between 1950 and 1955 of which the more important were:

- (a) a relative decline in investment in livestock,
- (b) a relative increase in investment in land improvements,
- (c) a relative increase in investment in irrigation facilities by the government, and
- (d) a relative increase in investment in farm implements and farm houses.

Generally, though the rate of investment had not kept pace with the increase in farm income, the pattern of investment which formerly had attached considerable importance to livestock had been altered to allow for a stepping up of fixed capital formation, with beneficial effects on farm productivity.

Changes in the production pattern

Total agricultural production increased by about 21% during the period 1950 to 1955. Total crop production increased by 15% and livestock production by over 90%. With respect to crop production, sugarcane output showed little change but there were substantial increases in the output of rice and other crops. These figures indicate the increases in output that took place in the agricultural sector after the land reform. An important contributing factor was the increase in the volume of inputs; though there was little change in the acreage of cultivated land, labour input during this period increased by 7% and working capital, including fertilizers, seed and pesticides, increased by 75%.

In conclusion, it can be said that land reform in Taiwan has brought about increased productivity and institutional changes in the agricultural sector through the rationalization of the tenure system and the provision of incentives to the farmers. There has also been a shift of the landlords' capital, formerly invested in land, into investment in the industrial sector. These changes have laid the groundwork for future agricultural and economic development in Taiwan.

IV. FUTURE TRENDS

Although the land-to-the-tiller program has contributed significantly to economic development, there remain certain difficult problems to which there are yet no effective answers. A brief description of some of these problems and proposed measures for their solution are set out below.

Protection of new owner farmers

The land reform has given rise to a substantially large group of new owner farmers, who are required to pay by instalments over a period of ten years for land purchased under the land reform program. As their economic position is often weak, it becomes necessary to protect them from sinking to the status of tenant farmers or from losing their cultivated land. The following measures have been adopted by the government to check this tendency.

- (a) No owner cultivated land should be leased to tenants for cultivation.
- (b) Any sale of owner cultivated land must be approved by the government and the new purchaser must show that he and his family are capable of cultivating the land with their own labour.
- (c) When owner cultivated land passes on a death, it must be transferred to an heir who will cultivate the land with his own or his family labour.
- (d) A ceiling is set to the value of a mortgage on owner cultivated land.

Government tax and farm produce purchase policies

During the period of ten years in which the new owner farmers are paying for their land, their financial resources could be adversely affected by two factors, a heavy tax burden and a low purchase price set by government for their farm produce. Government taxation and pricing policies should be framed, there-

fore, so as to avoid imposing an unduly severe financial burden on the new owner cultivators.

Exchange and consolidation of land plots

The farmers have in the past been cultivating small holdings usually consisting of several small and widely scattered plots. Under these conditions it has been difficult for the farmers to adopt modern methods of cultivation. In spite of the land reform, this situation has remained unchanged. In order to achieve more rational land use and to increase farm efficiency, the government should encourage and assist the exchange and consolidation of land plots. Such programs have been initiated in a few selected areas in southern Taiwan and the scheme should be expanded to cover the whole island.

Savings and capital formation

In order to promote savings, farmers should be encouraged to restrict their consumption expenditure. An educational campaign could play a useful role in assisting the farmer to allocate income between the family budget and the demand for capital investment on his land. The government should also plan for the efficient utilisation of the substantial increase in savings that is expected to take place after 1962, when a large number of tenant farmers who have purchased land will have completed their instalment payments. The future development of agriculture and industry in Taiwan will depend largely upon the availability of farmers' savings for agricultural investment.

ECONOMIC DEVELOPMENT IN SOUTH VIETNAM

1954 - 60

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I. INTRODUCTION

On 20th July, 1954 at the Geneva Conference, it was decided that Vietnam, after eight years of war, was to be divided into two halves along the 17th parallel. The northern half had a communist government, led by Mr. Ho-chi-Minh, while the southern half had a non-communist nationalist government headed by Mr. Ngo-dinh-Diem.

From the economic viewpoint, the problems facing the governments of both North and South Vietnam were formidable, the division of the country into two not being the least of them.

The present article deals only with economic developments in South Vietnam since Geneva.¹ Readers interested in the economic problems of North Vietnam are referred elsewhere.²

Since 1954 little has been written on economic development in Vietnam *as such*. Economic development was a slow process and economic problems were dwarfed by political developments which were more spectacular.

There had also been a tendency among writers on Vietnam to view the economic problems of South Vietnam in relation to the competition with "the communists next door". The present article will avoid injecting this political element into its discussion. It will examine the economic situation of South Vietnam from a purely analytical and historical viewpoint and review the economic developments there in the period 1954 to 1960. This review will deal mainly with the development of agriculture, industry and trade, the part played by foreign aid, and the economic policy of the government.

II. AFTERMATH OF WAR

Some knowledge of the economic situation prevailing in Vietnam immediately after partition is necessary for an understanding of economic developments there.

A division of Vietnam along the 17th parallel would give North Vietnam an area of 63,360 square miles with a population of 13m, and South Vietnam 65,726 square miles with a population of 12m.³

1. South Vietnam and North Vietnam are officially known as *Republic of Vietnam*, and *Democratic Republic of Vietnam* respectively. Throughout this article, "Vietnamese government" refers to the South Vietnamese government.

2. On economic development in North Vietnam, see: Theodore Shabad, "Economic Development in North Vietnam", *Pacific Affairs*, Vol. XXXI, No. I, March 1958, pp. 36-53; P.H.M. Jones, "North Vietnam's Industry", *Far Eastern Economic Review*, Vol. XXIX, No. 12, September 22, 1960, pp. 652-660; Bernard Fall, *Le Viet-Minh, 1945-1960*, Armand Colin, Paris, 1960, Parts V and VI.

3. *The Times Atlas of the World*, Vol. I, p. xxvii (1958 Edition).

The population figures given above are estimates for 1956. The population for North Vietnam has been estimated by United Nations experts to be 15m and for South Vietnam 12.8m in 1958.⁴ According to a more recent Vietnamese official publication, the population of South Vietnam in 1959 numbered 14.8m.⁵ Now what about its resources?

Before partition, Vietnam's resources were fairly well balanced. The North possessed a larger industrial labour force, and practically all the major mineral resources as well as the major industries of the country. The South was largely agricultural. It was the "rice granary" of Vietnam. In addition, for geological as well as climatic reasons, it had also all the rubber plantations in the country.

Tables I, II and III in the Appendix⁶ give figures relating to agriculture, mining and industrial production of Vietnam before the Second World War.

The output listed in Table I was largely produced in South Vietnam and practically all output listed in Tables II and III in North Vietnam. The economies of North and South Vietnam were thus complementary. Partition, of course, altered all this. As South Vietnam had practically no known mineral or industrial resources, one of the consequences of partition was an imbalance in its economy.

The second difficulty South Vietnam faced in 1954 resulted from the long years of war. Allied bombing in World War II, and the hostilities between 1946 and 1954 had caused immense physical destruction. Further, the fixed capital stock in the country had not been maintained. Roads, railways, bridges, canals and factories all suffered badly from lack of repairs and maintenance or were destroyed and not replaced.

In a speech dealing with national economic reconstruction President Ngo-dinh-Diem gave the following details concerning the extent of the damage wrought by war: annual production had fallen by 50% compared with the pre-war period; nearly half of the formerly cultivated area had been abandoned;⁷ 50,000 heads of cattle had been lost; irrigation works had deteriorated; many rice mills had been dismantled and transported abroad; industrial plants established outside of the big cities had been destroyed; only 20% of the river transportation system was intact.⁸

Various studies by Vietnamese government officials and French experts also give the following statistics of war damage: 60% of the total highways had been destroyed or damaged; on National Highway No. 1, of the 475 bridges existing before the war, 134 had been either seriously damaged or completely demolished;⁹ of the 1,406 kilometres of railways only 937 kilometres were in operation by August 1954 while "all the stock, old and new alike, is worn out from intensive service during the nine years of war. Most of it suffered irreparable damage from sabotage";¹⁰ in 1938 the rubber plantations covered an area of 135,000 hectares,

4. United Nations, *Statistical Year Book*, 1959, pp. 30-32.

5. Department of National Economy, *Economic Survey of Free Vietnam 1955-1959*, 1960, p. 8. Hereafter referred to as *Economic Survey 1954-1959*.

6. All tables, including Tables I-XXVI, are contained in the Appendix.

7. The prewar rice acreage was 2.3m hectares.

8. President Ngo-dinh-Diem, speech on September 17, 1955 on the occasion of the reopening of the Dong-Cam Dam, Press Office of the Presidency of the Republic of Vietnam, *Major Policy Speeches by President Ngo-dinh-Diem*, 1957, pp. 27-28.

9. Trinh-Ngoc-Sanh, *Vietnam 1958*, special issue of *Marchés tropicaux et coloniaux*, No. 681, November 29, 1958, p. 35. Hereafter referred to as *Vietnam 1958*.

10. Pham-minh-Duong, *Vietnam 1958*, p. 25.

but by 1954 "these plantations were laid waste; workers scattered, trees were sadly damaged, and surviving plantations represented a total of 70,000 hectares..."¹¹

Another important consequence of the war and the ensuing insecurity was the large number of people who had deserted their villages to seek refuge in the cities, thus causing not only a labour shortage in the countryside but also congestion in the towns and a severe housing crisis. According to Vu-van-Thai the proportion of urban population had risen from 6% to 40%, and at least 20% of the population had shifted from the agricultural to the tertiary industrial sector (business and utilities).¹² Saigon which was built to accommodate 400,000 people before the war had a population of 1,779,400 in 1956.¹³ In an agricultural country like Vietnam, one would expect agricultural output to be the largest component of the national income, but it fell from 62% of the national product in 1938 to only 24% in 1955. Tables IV and V in the Appendix show the relative importance of the primary sector in 1938 and 1955 respectively.

There was little production in Vietnam during the war years, and consequently, the volume of exports was small and insignificant. The extent of the trade deficit is shown in Table VI in the Appendix. However, imports were kept up, and a seemingly prosperous economy was maintained. This was made possible by the expenditure of a French army of 350,000 men. In fact this source of income could be likened to the spending of a large army of "tourists" and constituted Vietnam's "invisible export". The withdrawal of the French army in 1956 was thus a further important contributing factor to Vietnam's economic distress. Table VII in the Appendix gives the expenditure of the French government in Vietnam in 1953-56.

Further, from 1954 to 1956 the Exchange Office of Vietnam was in the control of the French authorities who permitted the flight of capital owned by French citizens. When the Vietnamese Government took over control of the Exchange Office, its funds were nearly exhausted. There is little doubt that the foreign exchange derived from the spending of the French Expeditionary Forces should have been frozen for the duration of the hostilities and released for economic development purposes when the war ended, as for example in the case of India, who accumulated a sterling reserve of some £800m in London during the war.

Another source of economic difficulties for the Vietnamese Government was the necessity to maintain a relatively large army after, and in spite of, the return of peace. It is not inappropriate to recall that the Geneva Agreement was only an armistice. Mutual suspicion made the maintenance of armed forces by both North and South Vietnam a necessary evil. The South Vietnamese Government maintained an army of 150,000 men and from a purely economic point of view this represented a considerable burden on the government, considering the meager resources it had at its disposal.

To this already somber picture was added the problem of the influx of nearly a million refugees from North Vietnam. In the confusion then prevailing, and in the haste with which they had to leave North Vietnam before the expiration

11. Le-van-Ngoi, *Vietnam* 1958, p. 58.

12. Vu-van-Thai, *Vietnam* 1958, p. 70.

13. Banque Nationale du Vietnam, mission "Economie et Humanisme", *Etude sur les conditions de vie et les besoins de la population du Vietnam*, septembre 1959, p. 63. Hereafter referred to as *Conditions de vie*.

of the time limit imposed by the Geneva Agreement,¹⁴ these refugees had to abandon nearly all their possessions, including their cattle and farm implements. When they arrived in South Vietnam, they constituted an additional burden, financial and otherwise, on the already hard pressed Vietnam Government. The refugees had to be resettled, which meant they had to be given new jobs, new land. In the meantime, they had to be provided with food, clothing and shelter.¹⁵

One further factor should be mentioned. It is of a political nature, but had such considerable influence on the overall situation as to be, to borrow a phrase from Max Weber, "economically relevant". For all his prestige, Mr. Ngo-dinh-Diem's position as head of state was then none too secure. His authority was challenged on all sides by the various political elements in the south, by the politico-religious sects (Cao-dai, Hoa-hao), by the Binh-Xuyen organisation, and even by the chief of staff of the army.¹⁶ Thus the weakness of the central government was a severe handicap in tackling the urgent economic problems.

Lastly, as Vietnam emerged to independence, it had to build up the whole apparatus of a modern state, and at the same time regain control of the country's economy which, until then, was largely in foreign hands, mainly French and Chinese.

The economic picture of South Vietnam in 1954-55, at the end of the war, and on the morrow of the Geneva partition is briefly summarised below:

- (a) widespread physical destruction
- (b) insignificant volume of production, both agricultural and industrial
- (c) considerable deterioration of capital equipment
- (d) a lopsided economic structure, commerce being the major component of the national income
- (e) a large trade deficit
- (f) a huge unproductive population of refugees
- (g) a relatively large standing army
- (h) an economy mainly controlled by foreign nationals and
- (i) a hard-pressed and weak central government.

ECONOMIC RECOVERY

A few years later, however, the picture was considerably transformed. The destruction had been made good and capital investment and production, both agricultural and industrial, considerably increased; the refugees had been resettled; the trade gap reduced; the control of the national economy largely recovered; and more Vietnamese nationals transferred from the trading to the productive sectors.

The achievement of these results were due first and foremost to the disbanding of the politico-religious sects and similar organisations, the restoration of political stability and of law and order, and the strengthening of government authority throughout the country. The government of Mr. Ngo-dinh-Diem did

14. May 1955. Later extended to July 1955, on the intervention of the International Commission for Supervision and Control of the Armistice Agreement.

15. See "The Refugee Problem" in Richard W. Lincholt and associates, *Viet-Nam, The First Five Years*, Michigan State University Press, 1959.

16. On the political difficulties confronting the South Vietnam Government in the years 1954-55, see Bernard Fall, "Indochina since Geneva", *Pacific Affairs*, Vol. XXVIII, No. 1, March 1955, pp. 3-25.

not fall but strengthened itself in a spectacular manner, and by 1956 its authority was unchallenged.¹⁷

III. DEVELOPMENTS IN THE AGRICULTURAL SECTOR

In the agricultural sector, progress was achieved in several directions: increase and diversification as well as modernisation and mechanisation of production.

The two main agricultural products of Vietnam remained, by and large, rice and rubber. Rice production, which had dropped heavily during the war years,¹⁸ increased from 2.8m metric tons in 1955-56 to 5.3m in 1959-60. This increase is shown in Table VIII in the Appendix. Thus rice production nearly doubled between 1955-56 and 1959-60. This was made possible by the increase in acreage, which rose from 2,243 to 2,503 thousand hectares in this period; the rise in acreage was in turn made possible both by the rehabilitation of land abandoned during the war, and by the opening up of new land. With peace and security restored, many of the farmers could go back to their villages and resume work in the rice fields. The sects were no longer there to extort their dues, and the various measures introduced by the government under the land reform program made it possible for the peasants to keep what they produced.¹⁹ The large increase in production is a classical example of the relationship between incentive and output.

It can be seen from Table VIII that a fall in the cultivated acreage took place between 1957-58 and 1959-60; this was not accompanied by a corresponding fall in production. On the contrary there was an increase in rice output from 3.2m to 5.3m metric tons, on account of a rise in the yield per hectare due to an improvement in farming techniques, and in particular to the extended use of fertilizers and improved water control through the building of new dams. Average yield per hectare before 1954 did not exceed 1.4 metric tons²⁰ but in 1959 average yield reached 2.2 metric tons.²¹ This figure is likely to rise in future years as the government pursues its efforts to increase productivity under a three year project adopted by the Office of Agriculture.²²

It should be mentioned in this connection that the refugees from North Vietnam played a notable contribution to the increase in rice production. Hard-working and skilled rice growers, they had reclaimed large tracts of abandoned land, especially in the south-west of Vietnam. The reclaiming of the Cai-San area, in particular, was made possible by the settlement of about 100,000 refugees

17. See Robert Guillaín, quoted by Bernard Fall, in "South Vietnam's internal problems", *Pacific Affairs*, Vol. XXXI, No. 3, September 1958, pp. 241-260. See also Brian Crozier, "The International Situation in Indochina", *Pacific Affairs*, Vol. XXIX No. 4, December 1956, pp. 309-323; Ellen J. Hammer, "Progress Report on South Vietnam", *Pacific Affairs*, Vol. XXX, No. 3, September 1957, pp. 221-235; and William Henderson, "South Vietnam finds itself", *Foreign Affairs*, Vol. 35 No. 2, January 1957, pp. 283-294.

18. Rice production before 1954 (in metric tons): 1940, 3.8m; 1947, 1.9m; 1951, 2.0m; 1953, 2.1m. See *Conditions de vie*, p. 109.

19. See p. 68.

20. Average yield in metric tons per hectare up to 1954 was as follows: 1942, 1.3; 1951, 1.4; 1952, 1.3; 1953, 1.3; 1954, 1.3. *L'évolution économique du Vietnam*, 1954, p. 14.

21. Secretariat of State for Agriculture, Report, in *Report on the Achievements of the Government, 1954-1960* p. 732. Hereafter referred to as *Government Report, 1954-1960*.

22. *Vietnam Press* (Weekly), January 8, 1961.

on 77,000 hectares of land which had been lying fallow for over eight years.²³ The settlement of a further 70,000 farmers,²⁴ both refugees from North Vietnam and farmers from the poor and congested coastal plains of central Vietnam, in the High Plateaus north-east of Saigon contributed also to the increase in rice production, especially after permission was given to grow rice in addition to industrial crops after 1958.²⁵ According to Ton-That-Trinh, this area, with a population of only 600,000 contained 150m acres of rich land, of which only 275,000 acres had been farmed by modern methods, and "it is not surprising, therefore, that the administration has granted first priority to their development".²⁶ Before the war practically no rice was produced in this area, but in 1959 it contributed 94,800 tons of rice to national production.²⁷

The output of the other major agricultural product, rubber, also increased considerably. In 1940 Vietnam produced 52,000 metric tons of rubber, but output was only 26,000 metric tons in 1947. Thereafter output rose slowly, reaching 50,000 tons in 1954. This trend continued throughout the period 1955 to 1959, and in 1959 production reached 74,500 metric tons. Acreage also increased from 64 thousand hectares in 1954 to 80 thousand hectares in 1959. Table IX shows the extent of increase in both acreage and production, and the increase in yield per hectare is given in Table X.

The increase in yield was largely on account of research work done by the Vietnam Rubber Research Institute in improving stock selection, tapping methods, and plant stimulation.²⁸ Efforts were also made to rejuvenate old trees and plantations which had been too intensively tapped during the war. The high proportion of old trees is shown in Table XI.

In an effort made to diversify the economy other crops, especially industrial crops, were introduced. The introduction of these crops deserves special mention.

On the rich volcanic soil of the High Plateaus, two fibrous plants, keenaf and ramie, thrived so well that production had increased to the point of not only meeting the local consumption, but also of providing a surplus for export. In addition, South Vietnam which did not grow any jute before the war, now began to produce an increasing quantity of jute. Experiments in cultivating cotton had also proved successful. In 1959-60, Vietnam produced some 150 metric tons of cotton, but this is far from meeting the annual local consumption of 33,000 — 36,000 metric tons. Table XII gives the output of jute, keenaf and ramie in 1957-59.

As shown in Table XIII, the cultivation of other crops, in particular coffee, tea, sugar cane and fruit trees has also increased considerably. Thus, compared with 1954, the production of coffee in 1959 had increased by 163%, tea 11% and sugar cane and fruit 83% and 40% respectively.

Parallel with the effort to increase agricultural production was that made to increase the output of cattle, hogs, poultry and fish. Between 1954 and 1959

23. Alfred L. Carnaux, in *The First Five Years*, p. 88.

24. Office of the Commissioner for Land Development, Report, in *Government Report, 1954-1960*, p. 14.

25. Before that date the settlers were not permitted to grow rice for fear that the soil might be exhausted.

26. Ton-That-Trinh, *Viet-Nam 1958*, p. 12.

27. *Evolution économique du Viet-Nam, 1959*, p. 15.

28. See Maurice Gérard, *Viet-nam 1958*, p. 64-65.

the number of oxen increased by 50%, buffaloes 124%, hogs 172% and ducks and hens 84% and 381% respectively, as shown in Table XIV.

The number of persons engaged in fish rearing increased from 2,600 in 1955 to 17,400 in 1959, while for the same period, the area of fish ponds increased from 59,000, to 170,000 square metres, as given in Table XV.

The sea-water fishing industry also expanded and the export of sea fish rose from 228,850 kilograms in 1957 to 398,800 and 452,670 kilograms in 1958 and 1959 respectively.²⁹

Mechanisation played an important role in increasing output in the primary sector. In the new Land Development Centers, it was found possible to combine family farming with mechanised farming on a large scale using modern farm techniques. Modern equipment such as tractors, bulldozers and mechanical plows were used in increasing numbers, and in his message to the National Assembly on October 3, 1960, President Ngo-din-Diem could point proudly to the development of mechanised agriculture in Vietnam as "the most important development in this field in South-East Asia".³⁰ In fact, though the tractor was unknown in Vietnam before 1954, by July 1960 Vietnam had 395 units of agricultural mechanical machinery, comprising 159 bulldozers and 236 tractors.³¹ The number of motorised fishing boats increased from 5 in 1954 to 1,900 in 1959. There were 50 electrically powered fishing net weavers in operation in 1960.³² Other factors also played a part in increasing output. The amount of fertilizers consumed is indicated by the value of their imports, which rose from US\$4.9m in 1958 to \$5.3m in 1959 and \$7.4m in 1960.³³ Further, 161 new dams, both large and small, had been constructed in the period 1954 to 1959.³⁴

IV. DEVELOPMENTS IN THE INDUSTRIAL SECTOR

Between 1954 and 1959 progress in agriculture was general and spectacular. The same situation did not obtain in the field of industry. Here progress was slow and uneven.

Industries in Vietnam after Geneva can be classified into two categories — older industries and newly established industries. As regards the old industries there was little progress, and in some cases even a contraction of output. But in the new industries progress was noticeable, and in some fields, substantial.

Table XVI gives output figures for some of the older industries in the period 1954 to 1958. With the exception of soft drinks, production shows a falling trend. A large part of this contraction in output was on account of the withdrawal of the large French Expeditionary Corps from Vietnam.

In the new industries such as coal, sugar and textiles, progress was spectacular. This is all the more remarkable, since before the armistice South Vietnam produced no coal, no textiles and little refined sugar. The production of coal increased 9 times and that of refined sugar 16 times in the space of five years. Table XVII

29. *Vietnam Press*, (Weekly), September 11, 1960.

30. *Vietnam Press*, Special issue. October 26, 1960.

31. Office of the Commissioner General for Land Development, *Government Report, 1954-1960*, p. 12.

32. Secretariate of State for National Economy, *Government Report, 1954-1960*, p. 556-557.

33. *Ibid.*, p. 536.

34. Secretariate for Agriculture, *Government Report*, p. 733.

shows the progress achieved in the output of coal, refined sugar and electric power.

It is however, in the field of textiles that the increase in production is the most substantial. The production of cotton yarn increased from 6 metric tons in 1957 to 307 metric tons in 1959, while that of fabrics of all kinds more than doubled, as shown in Table XVIII.

Production of gunny bags was also started in 1959, with an initial output of 3 million bags.

The production of the above commodities is likely to increase in future years, as part of the government economic policy. Annual production of coal is expected to rise to 150,000 metric tons, refined sugar 76,000 metric tons, gunny bags 8 million units, textiles and fabrics 10,000 metric tons and cotton yarn 9,600 metric tons.³⁵ In his message to the National Assembly on October 3, 1960, President Ngo-dinh-Diem announced that these targets would be reached in the next two or three years and would satisfy local consumption.³⁶ Production of electric power will be also increased by the construction of two small power plants with capacities of 33,000 kilowatt-hours (Saigon area) and 23,000 kilowatt-hours (Tourane-Nong-Son area) respectively, while the construction of the big Danhim Dam will add 860 million kilowatt-hours to the power output of Vietnam.³⁷ These projects have been started or will be initiated in 1961.

A whole range of other industrial projects had also reached the final stages of planning, and construction work had commenced on two major projects. They are the building of a glass factory which is expected to produce annually 15,000 metric tons of glass, 21 million bottles, 20 million tumblers and 2 million pharmaceutical vials,³⁸ and the construction of a cement factory (the Ha-Tien project) with an annual output of 250,000 metric tons of cement.³⁹

V. FINANCING THE FIVE-YEAR PLAN, 1956-61

Commenting on the industrial development of Vietnam, the *Far Eastern Economic Review* noted that industry was "the most disappointing sector between 1955 and 1958".⁴⁰ Delay in industrial development was due, at least partly, to the lack of experience of the Vietnam administration in planning. Unlike India which had established the Planning Committee of the Indian National Congress as early as 1938, Vietnam had practically no experience in this field before 1954. Immediately after World War II, the French Planning Commission under the chairmanship of Mr. Monnet set up a Planning Sub-Committee for Indochina. But owing to the commencement of hostilities in 1945, little could be done to execute an ambitious plan which called for a total expenditure of 3,198m francs in the period 1946 to 1956. Of this amount, 757m francs were allotted for reconstruction and 2,441m francs for modernisation. In 1954, the Ministry of Planning of the Vietnam Government also drafted a Two-Year Plan,

35. Department of Economy, *Investing in Vietnam*, 1959, pp. 32, 59-61.

36. *Vietnam Press*, Special issue, October 26, 1960.

37. *Investing in Vietnam*, p. 38.

38. *Vietnam Press*, (Weekly), September 25, 1960.

39. *Ibid*, October 16, 1960.

40. *Far Eastern Economic Review*, 1960 Year-Book, p. 76.

but this plan dealt mainly with rehabilitation. These two plans have been mentioned only for their historical interest.⁴¹

In 1955 a Directorate of Planning was created and was assigned the task of drawing up a Five-Year Plan for the period 1956 to 1961. At the same time help was requested from the United Nations. A United Nations Economic Survey Team led by Professor Carter Goodrich arrived in Vietnam in July 1955 and submitted its report to President Ngo-dinh-Diem in 1956. The Vietnam Five-Year Plan was largely based on the recommendations contained in this report.⁴²

The industrial development of Vietnam in turn had been largely based on its Five-Year Plan, which was presented in August 1957, though it has not been made public. There seem to be two reasons for not publishing the contents of the Five-Year Plan. First, the Government feared sabotage by the Communists of its main efforts to assist economic expansion. Second, the Five-Year Plan called for relatively large expenditure of foreign exchange. Vietnam depended heavily on American aid but the extent of this aid could not be estimated in advance since, in conformity with American financial practice, aid funds were appropriated by the American Government on an annual basis. The Vietnam Government was therefore reluctant to publish a plan the execution of which would depend on the foreign aid available.

It is not possible to examine the details of Vietnam's Five-Year Plan here. The reader is referred to the article by Huynh-van-Diem cited above, as well as to *Investing in Viet-Nam*. Briefly, the objective of the plan was to raise the national income from 75 to 85 milliard piastres in five years, that is, an increase of 13.4% or 2.7% per annum. In the same period production was to be raised by 16% and capital formation as a proportion of national income was to increase from 5% to 10%. New investments would total 20,000m piastres, of which 15,000m would come from government sources, and the remaining 5,000m from private sources. In addition, the government would spend a further 2,500m piastres for development and operational purposes, thus bringing total government expenditure to 17,500m piastres. Table XIX shows the planned distribution by industrial sectors of government expenditure under the Five-Year Plan.

UNITED STATES AID

One important question arises immediately: with what resources was the government to finance the plan? Mr. Huynh-van-Diem stated that its financing would largely depend on foreign aid. Foreign aid is closely related to trade and we shall examine first Vietnam's external trade as background to the question of foreign aid and government economic policy.

As has been pointed out above, for a number of reasons Vietnam had a large trade deficit. From 1955 to 1959 this remained true, although progress was clearly noticeable after 1957. Table XX shows the small gradual improvement in her balance of trade in recent years.

To bridge this large deficit, it was necessary either to curb imports drastically, or to obtain substantial foreign assistance, either in the form of credit, loans or

41. On this, see Huynh-Van-Diem, "The Five-Year Plan of the Republic of Vietnam", *Vietnam* 1958, pp. 9-11. See also France, Présidence de la République, Commission de modernisation des territoires d'outre-mer, sous-Commission pour l'Indochine, *Rapport* (Ier), novembre 1948.

42. United Nations, *Toward the Economic Development of the Republic of Vietnam*, Report of the Economic Mission to the Republic of Vietnam, New York, 1959.

grants. Since foreign assistance was forthcoming, a drastic reduction in imports did not take place. Foreign assistance to Vietnam was mainly in the form of grants, of which the United States was the most important contributor. The extent of United States aid to Vietnam can be seen in Table XXI.

American aid was given to Vietnam primarily for security reasons. It is therefore not surprising that an overwhelmingly large portion of this aid was classified as defense support, as shown in Table XXII.⁴³

Defense support, in turn, can be divided into two categories: "project aid" and "non-project aid". In the first category the United States Government paid directly for the goods and services required by the Vietnamese Government. In the second category (also called "commercial aid"), dollars were converted into piastres, which constituted "counterpart funds" from which the expenditure of the Vietnamese Government was met.

The "counterpart funds" were fed by piastres obtained through the conversion of dollars placed at the disposal of Vietnamese importers for the purchase of goods in the United States or elsewhere (known as "off-shore" purchases). The largest part of these imports was taken up by consumer goods. The importers also obtained the dollars required at the official rate of VN\$35 to US\$1, whereas the black market rate stood at 70 : 1 or above. For these two reasons there had been a good deal of controversy as to whether the large American grants had been well utilised. There are of course other issues involved, but the debates revolved round these two major points.

Two typical viewpoints can be cited in this connection — one represented by that of the journalist David Hotham and the other by US Senator Mike Mansfield. Hotham's main argument is that American aid was spent largely on consumer goods and contributed little to the industrialisation of Vietnam in its competition with "the communists next door", therefore American aid has been largely wasted.⁴⁴ For his part, Senator Mike Mansfield argued that since the official rate of the piastre was set at 35 to the dollar as compared with the black market rate of 70 : 1 and above, the Vietnamese Government and the American taxpayer had not received the full value in goods and services of the aid program. The Senator therefore called for a devaluation of the piastre.⁴⁵

Concerning the related questions whether Vietnam would have been better off if it had imported less consumption goods and more capital equipment, and whether American aid should have been used for industrial development rather than for military purposes, there are two aspects: one political and one economic.

From the political point of view, it was for the Vietnam Government to decide what should be given priority in its appraisal of the overall situation, and to act accordingly. Whether the Government was wise in spending more on defense than on economic development is not economically relevant.⁴⁶

43. Eighty-Sixth Congress, second session, Senate Committee on Foreign Relations, *United States Program, Report by the Sub-Committee on State Department Organisation and Public Affairs to the Committee on Foreign Relations*, February 26, 1960. Hereafter referred to as *US Aid Program*.

44. See *The First Five Years*, Chap. XXV.

45. See *US Aid Program*, pp. 22-24.

46. But see Ton-That-Thien, "Some Non-Economic Factors in the Economic Development of Underdeveloped Countries: Vietnamese Experience", in *The Malayan Economic Review*, Vol. V, No. 1, April 1960, pp. 66-73.

The economic argument is based on the rigidity of American aid procedure and the pattern of Vietnamese consumption. The selection of imports did not come under government control, but was determined in a free market economy. The greater demand for consumption goods and the consequent higher profit margins inevitably led to the counter-part funds being expended on imports of consumption goods rather than capital goods.

With regard to the question of devaluation, this is often proposed in circumstances where the income derived from exports is large and an overvalued currency hampers the export trade. In the case of Vietnam, however, devaluation would not have increased exports, since it had little to export. On the contrary devaluation would have occasioned a host of internal economic difficulties, the most serious of which would be a drastic increase in the internal price level and a drastic fall of government revenue derived indirectly from United States aid. A large part of government revenue was derived from customs duties, and these would certainly contract with the reduction in imports on account of the rise in import prices. Economically speaking then, the Vietnamese Government had a good case against devaluation.

A compromise was reached in the end, whereby American assistance to Vietnam would take more and more the form of loans repayable in local currency at a free market rate, while an increasing number of commodities previously imported with aid dollars were to be financed from Vietnamese — earned foreign exchange.

Lastly, it should be noted that United States aid provided the necessary stimulus to economic recovery and expansion. In 1955-59 this aid amounted to US\$1,135m. This sum does not appear excessive compared with American aid to Korea in 1945-56 of US\$7,418m⁴⁷ and with that to France in Indochina in 1950-55 of US\$3,200m.⁴⁸ But it enabled Vietnam to meet its enormous defense bill, stabilise prices, avoid inflation and maintain and even raise its levels of consumption and living standard.

Throughout this period prices rose in sympathy with the general upward trend of world prices, but there was little inflation. Table XXIII gives the indices of wage rates, prices of consumer goods and real wages in the Saigon area from 1954 to 1959; they show that a definite improvement in the workers' living standard had taken place.

Between December 1954 and June 1959 prices increased by 14.7% while the money wages of unskilled men workers, unskilled women workers, and skilled workers rose by 77.0%, 65.1% and 36.6% respectively. There was therefore a rise in real wages. The improvement in the overall situation is also evident in the rise in the national income. In 1959 it stood at 59,496m piastres compared with 55,460m piastres in 1956.

This prosperity in one sense appeared artificial since it was dependant on American aid. The danger was *not so much to accept aid as to attach a quality of timelessness to it*. The evidence showed that the government was fully aware of the danger, as witness the drive to increase agricultural and industrial output and to bring into effect an improvement in the balance of trade. The success

47. Bernard Fall, "Corée et Indochine, Deux Programmes d'Aide Américaine", *Politique étrangère*, No. 2, March-April 1956, p. 183.

48. *Ibid*, p. 186.

of the government measures led to a reduction of United States aid from over US\$300m in 1955 to US\$150m in 1961.⁴⁹

OTHER FOREIGN AID

French aid to Vietnam in 1955-56 amounted to 6,400m francs. A large part of this was applied for aid to refugees from North Vietnam (1,600m francs) and the development of Vietnamese rural economy (2,500m francs), including the financing of the government's land reform program.⁵⁰ An agreement to this effect was signed on September 10, 1958 between the French and the Vietnamese Governments, whereby the former consented to the use of 1,490m francs for the repurchase of land owned by French nationals for redistribution to Vietnamese farmers. There were 246,094 hectares of such land, and by September 1960, 196,709 hectares had been repurchased by the Vietnamese Government.⁵¹ Further, on March 24, 1960 an agreement was made, whereby the French Government accorded the Vietnamese a credit of 7,000m francs to finance its imports and a loan of 11,000m francs for development purposes.⁵²

Another source of funds was the war reparations paid by Japan to Vietnam for damages caused in World War II. On May 13, 1959, the Japanese and Vietnamese Governments signed a series of agreements under which Vietnam obtained from Japan US\$55.6m comprising US\$39.0m for war reparations, and two loans of \$7.5m and \$9.1m to finance imports and various development projects respectively.⁵³ The main project was the building of the Danhim Dam which would increase the production of electric power considerably.⁵⁴

Aid to Vietnam under the Colombo Plan totalled over US\$1m, of which \$800,000 was provided by Australia, \$120,000 by Canada, \$140,000 by the United Kingdom, and \$25,000 by other countries.⁵⁵ Aid from Germany amounted to DM 1m.⁵⁶ Lastly in 1955 to 1959 Vietnam received US\$1.8m from the United Nations in the form of technical assistance. US\$ 975,000 is to be provided in 1961-62 under the same head and a further US\$ 250,000 by SUNFED for the Mekong Project.⁵⁷

VI. SOME DETERMINANTS OF ECONOMIC POLICY

"If you ask me whether our aim is a directed economy or a completely *laissez-faire* doctrine, whether it is capitalist or socialist, I have but one answer: such preoccupations are to us purely theoretical, the policy of our Government is based on present, practical needs, and not guided by theoretical speculations. Our principal guide is that we seek to solve our economic problems with the best means on hand", thus said President Ngo-dinh-Diem in a speech before the Far-

49. This was announced by President Ngo-dinh-Diem on October 3, 1960, in his Message to the National Assembly, *Vietnam Press*, special issue, October 26, 1960. (This article was written before the agreement in May 1961 for increased United States aid to South Vietnam — Ed.)

50. *Marchés Coloniaux*, July 16, 1955.

51. *Vietnam Press*, (Weekly), September 25, 1960.

52. Vietnam Embassy, Paris, *Accords Franco-Vietnamiens*, 1960.

53. Vietnam Embassy, Paris, *Accords entre le Japon et le Vietnam*, 1959.

54. See above, p. 62.

55. Figures given by Mr. R. G. Casey, the Australian Minister for External Affairs, *The First Five Years*, pp. 338-9.

56. Directorate of Planning, Report, in *Government Report 1954-60*, p. 135.

57. *Ibid*, p. 133.

East America Council of Commerce and Industry, New York, on May 14, 1957.⁵⁸ In another speech, two years earlier, at Dong-Cam, Vietnam, he had given a similar answer to a similar question.⁵⁹

President Ngo-dinh-Diem rejected theoretical speculations as a guide to economic policy. Yet, every economic policy is based on some theoretical or philosophical considerations. This is true of Vietnam no less than of other countries and the economic policy of its government is likewise founded on certain principles: (1) a belief in economic planning, (2) realism, (3) the political and social philosophy of an agrarian economy and (4) nationalism. Let us take each point in turn.

Present international trends are developing in favour of some degree of planning. Even in the United States, planning as such is not rejected outright. Americans must not assume, said J. Galbraith, that because the Soviets have a planned society, that the United States should preclude a planned response to Soviet initiatives. "There is a dangerous tendency to imagine that faith in a free society means faith that it will accomplish everything that is needful without effort or direction".⁶⁰ In the case of Vietnam the adoption of planning is further motivated by the pressure of the masses. This is how President Ngo-dinh-Diem explained to a joint session of the United States Congress, on May 9, 1957: "The leaders of Asia, whatever their ideologies, are all faced with the tragic urgency of the economic and social problems of their countries. Under the strong pressure of their peoples, they are compelled to adopt economic planning the main theme of domestic political debates in Asian countries centers round the extent of planning needed, the indispensable method required to bring urgent practical results".⁶¹

But in adopting an official policy of economic planning, the government had tempered enthusiasm with a strong sense of realism. President Ngo-dinh-Diem has said that while industries are needed, "we do not aim at self-sufficiency, nor do we plan to build major capital goods industries in the near future. For the present, we plan on a gradual industrialisation program consistent with our needs and capacities We aim at producing some textiles, sugar, cement, paper, glass and plastics; together with some other plants producing goods for daily use, this would, for the time being, be the core of our industrialisation plan".⁶² There is little doubt that the Government of Vietnam had taken into consideration the recommendations of the United Nations Economic Survey Team. This team, noting in its report that it was in the agricultural sector that Vietnam had held, and continued to hold, obvious relative advantages and that it did not appear to have the resources necessary for massive industrial development, warned that "for such a region, economic self-sufficiency would be a costly folly . . .".⁶³

The same sense of realism had led the government to initiate the development of certain large enterprises and to take a number of concrete measures to facilitate foreign investments. On March 5, 1957 a Presidential Declaration laid down the

58. Republic of Vietnam, Presidency, Press Office, *The Emergence of Free Viet-Nam, Major addresses delivered by President Ngo-dinh-Diem during his official visit to the United States of America*, May 8-18, 1957, p. 38.

59. *Major Policy Speeches by President Ngo-dinh-Diem*, p. 33.

60. J. K. Galbraith, *The Liberal Hour*, Hamish Hamilton, London, 1960, p. 28.

61. *The Emergence of Vietnam*, p. 8.

62. *Ibid.*, p. 38.

63. United Nations Report, *op.cit.*, p. 29.

conditions under which foreign investors would be allowed to operate in Vietnam and the facilities that would be accorded to them. This declaration was supplemented by a Note on September 11, 1957. In substance these Government ordinances state that no nationalisation and expropriation would be carried out without just and fair compensation, and listed a number of tax exemptions and other privileges accorded to foreign businessmen investing in Vietnam.⁶⁴

With regard to the social problems of a largely agrarian economy the government had included in its economic policy a number of projects the objects of which were to redistribute rural property, change the social structure of agriculture and redistribute population in order to create "the foundation of our policy of harmonious development of all regions".⁶⁵ A land reform had been carried out which had given 122,942 tenant families 424,925 hectares of land by September 1960.⁶⁶ 126 Land Development Centers had been set up in which 189,545 persons had been resettled,⁶⁷ and 17 agro-towns had been created. The creation of agro-towns was motivated by the "three-fold concern for democratic principles, social justice, and security" and its aim was "to minimise rural inconveniences by providing facilities of urban life."⁶⁸

In addition to these measures, the government had given considerable financial help to the farmers. A National Agricultural Credit Office was created in April 1957 and by September 1960, 2,424m piastres had been loaned to farmers, in addition to 210m piastres made available to rubber growers.⁶⁹

The nationalistic policy of the government had been directed towards the fulfilment of two objectives: the freeing of the Vietnamese economy from foreign control, which meant from French and Chinese control, and the ending of Vietnamese dependence on American financial aid as early as possible.

In regard to the first objective, the Vietnam Government had participated in the breaking up of the Indochinese Economic Union. At the Four-State Conference in Paris in 1954, the economic union linking together the three states of Vietnam, Laos and Cambodia and these states with the French Union, was formally abolished. Thereafter Vietnam set up its own National Bank, Exchange Office and a Monetary High Council. In 1959, when the French Franc was devalued, the Government of Vietnam decided to maintain the value of the piastre at VN\$ 35 to US\$ 1, thus breaking away formally from the French Franc Area.

An Industrial Development Center was created in November 1957 to give technical and financial assistance to investors. By July 1960, this Center had loaned 354.7m piastres to Vietnamese industrialists.⁷⁰

64. For details, see *Investing in Vietnam*, Part I.

65. Department of Information, *Message of President Ngo-dinh-Diem*, October 6, 1958.

66. *Vietnam Press*, (Weekly), October 2, 1960.

67. Office of the Commissioner for Land Development, *Government Report 1954-60*, p. 14. See also Department of Land Registration and Agrarian Reform, *Agrarian Reform in Vietnam*, August 1958, and P.H.M. Jones, "New Deal in Vietnam's Far West", *Far Eastern Economic Review*, Vol. XXIX No 10, September 8, 1960, pp. 556-63, and J. Price Gittinger, "Progress in South Vietnam's Agrarian Reform", *Far Eastern Survey*, Vol. XXIX, No 1, January 1960, pp. 1-5, and No 2, February 1960, pp. 17-21.

68. President Ngo-dinh-Diem, Message to the National Assembly, October 3, 1960, *Vietnam Press*, Special issue, October 26, 1960. See also "Les agrovilles, expérience économique, sociale et politique", in the same issue.

69. *Times of Vietnam*, (Weekly), November 15, 1960.

70. Industrial Development Center, *Government Report, 1954-60*, p. 548.

A Vietnamese Chamber of Commerce was also set up and 75% of import licences were reserved for Vietnamese traders. Further, Vietnamese traders could obtain loans from the Vietnamese "Crédit Commercial". By July 1960 Vietnamese importers constituted an overwhelming majority of all importers. Of 777 importers registered, there were 584 Vietnamese, 36 Chinese, 74 French, 64 Indians, 6 Americans and 13 various nationalities.⁷¹

The government also took certain legislative measures to break the strong hold of the Chinese traders on the wholesale and retail trade of the country. The first was Ordinance No. 10 dated December 7, 1955, supplemented by Ordinance No. 48 dated August 21, 1956, which applied the principle of "*jus soli*" to the Chinese born in Vietnam. Further, Ordinance No. 53 dated September 6, 1956 forbade foreigners to engage in eleven retail trades, thus excluding a large number of Chinese nationals from these lines of commerce.⁷² These Ordinances had aroused a great deal of controversy as to their effect on the Vietnamese economy but we shall not enter into this discussion here.⁷³

To alleviate transitional difficulties a fund was established to assist small traders to set up retail shops. From December 1956 to July 1959, the Department of National Economy, which was responsible for the operation of this fund had made loans totalling 76m piastres to 1,076 retail traders.⁷⁴

It was, however, with respect to American financial aid that the Vietnamese Government made the most determined effort to free itself from external dependence. It can be said without exaggeration that the whole economic program of the government was geared to the ending of American aid at the earliest date possible. The various projects listed in the Five-Year Plan were accorded priority depending on whether they were destined to replace foreign imports and thus save foreign exchange.⁷⁵ Priority was given to the textile industries, for example, in order to save US\$ 35m annually, textile imports being the largest item on the import bill.⁷⁶ The construction of the cement factory will result in a saving of US\$ 2.5m and of sugar refineries in a saving of US\$ 4m on sugar and cement imports respectively,⁷⁷ while an increase in annual coal production of 150,000 metric tons will result in a saving of US\$ 7m on coal imports.⁷⁸

VII. CONCLUSION

We have now completed our examination of the major aspects of the economic development of Vietnam between 1954 and 1960 and it remains to assess briefly the results achieved.

71. Department of National Economy, *Government Report, 1954-60*, p. 535.

72. See Ambassade du Vietnam, Paris, *Ordonnance No. 10 du 7 décembre 1955 sur la Nationalité*; *Ordonnance No. 48 du 21 août 1956 sur la Nationalité*; and *Ordonnance No. 53 du 6 septembre 1956 portant l'énumération des professions interdites aux ressortissants des pays étrangers*.

73. See Bernard Fall, "Vietnam's Chinese Problem", *Far Eastern Survey*, Vol. XXVII, No 5, May 1958, pp. 67-72; and Father Raymond J. De Jaegher, "The Chinese in Viet-Nam", *The First Five Years*, pp. 107-117.

74. Secretariate of State for National Economy, *Government Report, 1954-60*, p. 532-33.

75. *Investing in Vietnam*, p. 57.

76. Textile imports in 1959 were as follows: Fabrics US\$ 24m, Cotton yarn US\$ 11m, *Investing in Vietnam*, p. 60.

77. *Ibid*, p. 58.

78. Secretariate of State for National Economy, *Government Report, 1954-60*, p. 547.

Agricultural and industrial production had increased considerably during this period, although industrial development had lagged behind in the initial stages. 1958 seemed to have marked the turning point in Vietnam's economic development, especially in regard to industry.

Vietnam's efforts to diversify its pattern of output in the agricultural sector had not yet borne fruit, since rubber and rice continued to dominate the export trade. Compared with the prewar period, the proportion of these two products in total exports had in fact increased substantially, as can be seen in Table XXIV.

In spite of Vietnam's efforts to divert some of its trade toward other countries, the French Franc Area continued to absorb a large part of the exports, although its share in Vietnam's imports had declined. This decline is understandable in view of United States aid and the operation of "off-shore" purchases (which had favoured Japan particularly). The relative importance of the French Franc Area, the United States and Japan in Vietnam's external trade is given in Table XXV.

Vietnam's efforts to attract capital were only moderately successful. By October 1959, total new private investment in Vietnam amounted to 1,827m piastres, given in Table XXVI. This limited success was not so much on account of lack of economic opportunities or administrative difficulties as the political uncertainties prevailing in Vietnam.

Professor Rostow has described the take-off into self-sustained economic growth as "the interval when the old blocks and resistances to steady growth are finally overcome..."⁷⁹ Growth then becomes the normal condition of the society, new industries expand rapidly and new techniques spread in agriculture as well as industry. Vietnam's economy in 1960 was not in the midst of "take-off", but there is some evidence to believe it was poised on the threshold of this stage.

79. W. W. Rostow, *The Stages of Economic Growth*, Cambridge, 1960, p. 7.

APPENDIX

TABLE I

VIETNAM'S AGRICULTURAL PRODUCTION IN 1938

| | <i>Output</i> (Metric tons) |
|---------|--------------------------------|
| Rice | 7,000,000 |
| Maize | 650,000 |
| Rubber | 60,000 |
| Pepper | 3,500 |
| Coffee | 3,500 |
| Tea | 15,000 |
| Tobacco | 15,000 |
| Sugar | 75,000 |
| Copra | 30,000 |
| Peanuts | 20,000 |
| Soya | 15,000 |

Source: *Annuaire statistique de l'Indochine, 1937-1938*, p. 95.

TABLE II

VIETNAM'S MINING PRODUCTION IN 1938

| | <i>Output</i> |
|-----------|---------------------------|
| Coal | 2,335,000 metric tons |
| Tin | 2,729 metric tons of ore* |
| Tungsten | 555 " " " |
| Zinc | 11,735 " " " |
| Iron | 130,298 " " " |
| Manganese | 2,214 " " " |
| Antimony | 191 " " " |
| Bauxite | 160 " " " |
| Phosphate | 37,341 metric tons |
| Gold | 151 kilograms † |
| Silver | 75 kilograms † |

* Including Laos.

† Produced in South Vietnam.

Source: *Annuaire statistique de l'Indochine, 1937-1938*, p. 108.

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TABLE III

VIETNAM'S INDUSTRIAL PRODUCTION IN 1938

| | <i>Output</i> |
|--------------------------|---------------------------------|
| Salt | 179,968 metric tons |
| Alcohol | |
| for drinking | 325,000 hectolitres |
| ,, industrial purposes | 4,000 ,, |
| ,, fuel | 53,000 ,, |
| Rum | 6,000 ,, |
| Sugar spirit | 45,000 ,, |
| Tobacco | 3,649 metric tons |
| Cement | 266,000 ,, ,, |
| Refined sugar | 15,000 ,, ,, |
| Matches | 30,358 packets of 10 boxes each |
| Cotton yarns and fabrics | 13,000 metric tons |
| Electricity | 74,739 kWh |

Source: *Annuaire statistique de l'Indochine, 1937-1938*, pp. 111-12.

TABLE IV

VIETNAM'S PRODUCTION BY INDUSTRIAL SECTORS IN 1938

| <i>Sectors</i> | <i>Value of output</i> | |
|--------------------|---------------------------|-------------------|
| | <i>(Million piastres)</i> | <i>(Per cent)</i> |
| Agriculture | 494 | 49 |
| Breeding | 73 | 7 |
| Forestry | 38 | 4 |
| Fishing | 20 | 2 |
| | — | — |
| Primary production | 625 | 62 |
| Handicraft | 50 | 5 |
| Mining | 19 | 2 |
| Industries | 180 | 18 |
| Services | 140 | 14 |
| | — | — |
| Total production | 1,014 | 100 |
| | — | — |

Source: *L'économie de la France d'Outre-Mer*, Librairie du Recueil Sirey, Paris, 1954, p. 26.

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TABLE V

VIETNAM'S GROSS NATIONAL PRODUCT AT MARKET PRICES IN 1955

| Sectors | Value of output | |
|----------------------------|--------------------|------------|
| | (Million piastres) | (Per cent) |
| Agriculture and breeding | 12,330 | 19 |
| Fishing | 3,370 | 5 |
| Primary production | 15,700 | 24 |
| Industries and handicraft | 6,804 | 10 |
| Commerce | 19,030 | 30 |
| Construction | 1,361 | 2 |
| Services and miscellaneous | 11,871 | 18 |
| Government | 9,498 | 15 |
| Total production | 64,264 | 100 |

Source: Banque nationale du Vietnam, supplément au Bulletin économique, *Les estimations du revenu national en 1956*, No. 3, 1958, p. 39.

TABLE VI

VIETNAM'S EXTERNAL TRADE, 1949-54

| | Imports | Exports | Balance |
|------|--------------------|---------|---------|
| | (Million piastres) | | |
| 1949 | 3,801 | 1,072 | -2,729 |
| 1950 | 4,216 | 1,559 | -2,657 |
| 1951 | 6,118 | 3,997 | -2,121 |
| 1952 | 12,536 | 1,979 | -10,557 |
| 1953 | 10,599 | 1,879 | -8,720 |
| 1954 | 11,347 | 1,971 | -9,376 |

Source: Institute de la Statistique et des Etudes économiques, *Evolution économique du Viet-Nam, 1952/53/54/55*.

TABLE VII

EXPENDITURE OF THE FRENCH GOVERNMENT IN VIETNAM, 1953-56

| | (Million francs) |
|-----------------------|------------------|
| 1953 | 163,254* |
| 1954 | 215,749 |
| 1955 | 40,300 |
| 1956 (first 6 months) | 310 |

* Inclusive of Cambodia and Laos.

Source: Huynh-Van-Lang, "The Foreign Exchange Policy of Viet-Nam", in Richard W. Linchholm and associates, *Viet-Nam, The First Five Years*, Michigan State University Press, 1959, p. 289.

ECONOMIC DEVELOPMENT IN SOUTH VIETNAM

TABLE VIII

RICE ACREAGE AND PRODUCTION IN VIETNAM, 1955-60

| <i>Crop year</i> | <i>Cultivated area</i> (<i>Thousand hectares</i>) | <i>Output</i> (<i>Thousand metric tons</i>) |
|------------------|--|--|
| 1955-56 | 2,243 | 2,839 |
| 1956-57 | 2,540 | 3,412 |
| 1957-58 | 2,719 | 3,192 |
| 1958-59 | 2,291 | 4,235 |
| 1959-60 | 2,503 | 5,311 |

Source: *Economic Survey, 1954-1959*, p. 12.

TABLE IX

RUBBER ACREAGE AND PRODUCTION IN VIETNAM, 1954-59

| | <i>Planted area</i> (<i>Thousand hectares</i>) | <i>Output</i> (<i>Metric tons</i>) |
|------|---|---|
| 1954 | 63.8 | 51,086 |
| 1955 | 75.1 | 66,336 |
| 1956 | 75.1 | 70,231 |
| 1957 | 74.9 | 69,657 |
| 1958 | 76.3 | 71,656 |
| 1959 | 80.0 | 74,522 |

Source: United States Operations Mission to Vietnam, (USOM), Vietnam, *Annual Statistical Bulletin*, No 3, p. 75.

TABLE X

YIELD PER HECTARE IN LARGE SIZE RUBBER PLANTATIONS, 1954-59

| | <i>Yield per hectare</i> (<i>Kilograms</i>) |
|------|--|
| 1954 | 964 |
| 1955 | 923 |
| 1956 | 1,030 |
| 1957 | 1,035 |
| 1958 | 1,095 |
| 1959 | 1,145 |

Source: USOM, Vietnam, *op. cit.*, p. 76.

ECONOMIC DEVELOPMENT IN SOUTH VIETNAM

TABLE XI

AGE OF RUBBER PLANTATIONS IN VIETNAM, END-1958

| <i>Year in which planted</i> | <i>Planted area still existing at end of 1958 (Hectares)</i> | <i>As percentage of total planted area</i> | |
|----------------------------------|--|--|-----|
| Before 1930 | 26,014 | More than 28 years | 42 |
| 1930 - 35 | 11,701 | 23-28 years | 19 |
| 1936 - 45 | 17,170 | 13-22 years | 27 |
| 1946 - 50 | 1,210 | 8 -12 years | 2 |
| 1951 | 454 | | |
| 1952 | 553 | | |
| 1953 | 567 | | |
| 1954 | 697 | | |
| 1955 | 132 | | |
| 1956 | 571 | | |
| 1957 | 1,303 | | |
| 1958 | 1,899 | Under 8 years | 10 |
| Total area surveyed | 62,271 | | 100 |

Source: USOM, Vietnam, *op. cit.*, p. 77.

TABLE XII

PRODUCTION OF FIBER IN VIETNAM, 1957-59

| | 1957 | 1958 | 1959 | 1957 | 1958 | 1959 |
|--------|----------------------|-------|--------|----------------------------|--------|---------|
| | <i>(Metric tons)</i> | | | <i>(Thousand piastres)</i> | | |
| Jute | 120 | 1,800 | 5,000 | 1,800 | 27,000 | 30,000 |
| Ramie | 30 | 80 | 300 | 2,400 | 6,400 | 10,000 |
| Keenaf | - | 1,650 | 5,000 | - | 24,800 | 75,000 |
| Total | 150 | 3,530 | 10,300 | 4,200 | 58,200 | 115,000 |

Source: *Times of Viet-Nam*, August 20, 1960.

ECONOMIC DEVELOPMENT IN SOUTH VIETNAM

TABLE XIII

PRODUCTION OF COFFEE, TEA, SUGAR CANE, AND FRUIT IN VIETNAM, 1954-59

| | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 |
|------------------------|-------|-------|-------|-------|-------|-------|
| <i>Output</i> | | | | | | |
| (Thousand metric tons) | | | | | | |
| Coffee | 1.2 | 1.8 | 2.4 | 3.2 | 2.5 | 3.3 |
| Tea | 3.7 | 2.4 | 4.2 | 4.3 | 3.4 | 4.1 |
| Sugar cane | 450.0 | 443.5 | 483.7 | 868.8 | 760.5 | 823.7 |
| Fruit | 178.2 | 180.5 | 193.4 | 182.7 | 211.5 | 249.9 |
| <i>Planted area</i> | | | | | | |
| (Thousand hectares) | | | | | | |
| Coffee | 3.0 | 3.0 | 3.5 | 4.7 | 5.0 | 5.6 |
| Tea | 7.5 | 6.5 | 8.7 | 9.3 | 8.4 | 8.9 |
| Sugar cane | 15.7 | 21.6 | 18.3 | 30.9 | 25.3 | 29.2 |
| Fruit | 15.9 | 18.7 | 26.2 | 26.0 | 32.2 | 37.1 |

Source: Secretariate for Agriculture, Report, *Government Report*, 1954-1960, p. 738.

TABLE XIV

PRODUCTION OF CATTLE, PIGS AND POULTRY IN VIETNAM, 1954-59

| | <i>Oxen</i> | <i>Buffaloes</i> | <i>Hogs</i> | <i>Ducks</i> | <i>Hens</i> |
|------------------|-------------|------------------|-------------|--------------|-------------|
| (Thousand units) | | | | | |
| 1954 | - | 250 | 1,000 | 3,969 | 2,000 |
| 1955 | 554 | 266 | 1,694 | 4,481 | 4,700 |
| 1956 | 658 | 382 | 2,362 | 4,332 | 5,841 |
| 1957 | 688 | 544 | 3,384 | 5,157 | 7,484 |
| 1958 | 840 | 556 | 2,329 | 6,394 | 9,192 |
| 1959 | 831 | 562 | 2,725 | 7,329 | 9,627 |

Source: Secretariate of State for Agriculture, *Government Report*, 1954-1960, p. 741.

TABLE XV

FISH BREEDING IN VIETNAM, 1955-59

| | <i>Number of persons engaged</i> | <i>Area of fish ponds (Square metres)</i> |
|------|--------------------------------------|---|
| 1955 | 2,634 | 58,960 |
| 1956 | 6,735 | 61,200 |
| 1957 | 8,654 | 65,816 |
| 1958 | 12,840 | 71,450 |
| 1959 | 17,430 | 169,871 |

Source: Secretariate of State for National Economy, *Government Report*, 1954-1960, p. 557.

ECONOMIC DEVELOPMENT IN SOUTH VIETNAM

TABLE XVI

INDUSTRIAL PRODUCTION IN VIETNAM, 1954-58

| | | 1954 | 1955 | 1956 | 1957 | 1958 |
|--------------------|-----------------------|------|------|------|------|------|
| Carbon dioxide | (metric tons) | 210 | 184 | 118 | 129 | 112 |
| Acetylene | (000 m ³) | 179 | 162 | 123 | 106 | 108 |
| Oxygen | (000 m ³) | 617 | 567 | 437 | 450 | 532 |
| Industrial alcohol | (000 hl) | 7 | 7 | 6 | - | - |
| Ice | (000 metric tons) | 116 | 140 | 120 | 100 | 85 |
| Beer | (000 hl) | 541 | 615 | 509 | 539 | 533 |
| Soft drinks | (000 hl) | 192 | 235 | 232 | 283 | 280 |
| Rice spirit | (000 hl) | 66 | 71 | 99 | 93 | 84 |
| Salt | (000 metric tons) | 98 | 77 | 60 | 79 | 61 |

Source: *Conditions de vie*, p. 110.

TABLE XVII

PRODUCTION OF COAL, REFINED SUGAR, AND ELECTRICITY IN VIETNAM, 1955-59

| | Coal (Metric tons) | Refined sugar (Metric tons) | Electricity (Thousand kWh) |
|------|-----------------------|--------------------------------|-------------------------------|
| 1955 | - | 1,961 | 202,823 |
| 1956 | 2,101 | 1,981 | 211,879 |
| 1957 | 12,372 | 1,111 | 224,294 |
| 1958 | 20,080 | 4,872 | 244,359 |
| 1959 | 19,928 | 32,849 | 272,961 |

Source: *Economic Survey, 1954-1959*, pp. 22-24.

TABLE XVIII

PRODUCTION OF YARN AND FABRICS IN VIETNAM, 1955-59

| | Cotton yarn (Metric tons) | Fabrics of all kinds (Million metres) |
|------|------------------------------|--|
| 1955 | - | 36.8 |
| 1956 | - | 33.5 |
| 1957 | 6 | 63.4 |
| 1958 | 90 | 67.5 |
| 1959 | 307 | 82.6 |

Source: *Economic Survey, 1954-1959*, p. 24, and *Times of Vietnam*, January 14, 1961.

ECONOMIC DEVELOPMENT IN SOUTH VIETNAM

TABLE XIX

DISTRIBUTION OF GOVERNMENT EXPENDITURE UNDER THE FIVE YEAR PLAN

| | <i>Government expenditure under Five Year Plan</i> | |
|--|--|-------------------|
| | <i>(Million piastres)</i> | <i>(Per cent)</i> |
| Agriculture | 3,000 | 17.2 |
| Industry | 1,600 | 9.1 |
| Electrical power, agricultural hydraulics | 2,300 | 13.1 |
| Public works | 5,500 | 31.5 |
| Social development | 1,700 | 19.4 |
| Miscellaneous and reserves | 3,400 | 9.7 |
| Total | <u>17,500</u> | <u>100.0</u> |

Source: *Vietnam 1958*, p. 11.

TABLE XX

FOREIGN TRADE OF VIETNAM, 1955-60

| | <i>Imports</i> | <i>Exports</i> | <i>Balance</i> | <i>Exports as % of imports</i> |
|--------------------------|---------------------------|----------------|----------------|--------------------------------|
| | <i>(Million piastres)</i> | | | |
| 1955 | 9,211 | 2,423 | - 6,788 | 26.2 |
| 1956 | 7,617 | 1,578 | - 6,039 | 20.7 |
| 1957 | 10,104 | 2,819 | - 7,285 | 28.0 |
| 1958 | 8,125 | 1,932 | - 6,193 | 23.7 |
| 1959 | 7,861 | 2,627 | - 5,234 | 33.4 |
| 1960 (first 8 months) | 5,518 | 2,006 | - 3,512 | 36.0 |

Source: *Economic Survey, 1954-59*, p. 28 and *Vietnam Press*, (Weekly), December 4, 1960.

TABLE XXI

UNITED STATES' CONTRIBUTION TO THE VIETNAMESE BUDGET, 1955-59

| | <i>Government budget</i> | <i>Defense expenditure</i> | <i>United States contribution</i> |
|------|------------------------------|--------------------------------|---------------------------------------|
| | <i>(Million piastres)</i> | | |
| 1955 | 17,030 | 10,622 | 7,037 |
| 1956 | 13,625 | 6,967 | 5,643 |
| 1957 | 14,919 | 6,598 | 5,699 |
| 1958 | 14,133 | 6,042 | 5,051 |
| 1959 | 14,994 | 6,042 | 5,051* |

* Provisional figure.

Source: Banque Nationale du Vietnam, *Bulletin Economique*, January 31, 1959, pp. 1-3.

ECONOMIC DEVELOPMENT IN SOUTH VIETNAM

TABLE XXII

UNITED STATES AID TO VIETNAM, 1955-59*

| | <i>Technical cooperation</i> | <i>Defense support (Million US\$)</i> | <i>Total</i> |
|-------|----------------------------------|---|----------------|
| 1955 | 0.0 | 320.2 | 320.2 |
| 1956 | 3.5 | 192.2 | 195.7 |
| 1957 | 4.4 | 255.0 | 259.4 |
| 1958 | 4.1 | 174.7 | 178.8 |
| 1959 | 4.3 | 177.0 | 181.3 |
| Total | <u>16.3</u> | <u>1,119.1</u> | <u>1,135.4</u> |

* Excluding Military Assistance.

Source: *United States Program, Report by the Sub-Committee on State Department Organisation and Public Affairs to the Committee on Foreign Relations*, February 26, 1960.

TABLE XXIII

INDICES OF MONEY AND REAL WAGES AND PRICES IN THE SAIGON AREA, 1954-59
(1949 = 100)

| | <i>Money wages</i> | <i>Prices of consumer goods</i> | <i>Real wages</i> |
|----------------------------------|------------------------|-------------------------------------|-----------------------|
| Unskilled workers (men) | | | |
| December 1954 | 243 | 210 | 117 |
| „ 1955 | 310 | 248 | 124 |
| „ 1956 | 364 | 234 | 257 |
| „ 1957 | 412 | 237 | 173 |
| „ 1958 | 434 | 238 | 182 |
| June 1959 | 431 | 241 | 178 |
| Unskilled workers (women) | | | |
| December 1954 | 278 | 210 | 132 |
| „ 1955 | 362 | 248 | 145 |
| „ 1956 | 438 | 234 | 187 |
| „ 1957 | 457 | 237 | 192 |
| „ 1958 | 448 | 238 | 188 |
| June 1959 | 459 | 241 | 190 |
| Skilled workers | | | |
| December 1954 | 333 | 210 | 158 |
| „ 1955 | 394 | 248 | 158 |
| „ 1956 | 406 | 234 | 173 |
| „ 1957 | 451 | 237 | 190 |
| „ 1958 | 464 | 238 | 194 |
| June 1959 | 455 | 241 | 188 |

Source: *Evolution Economique du Vietnam en 1959*, p. 49.

ECONOMIC DEVELOPMENT IN SOUTH VIETNAM

TABLE XXIV

PROPORTION OF RICE AND RUBBER IN VIETNAM'S TOTAL EXPORTS

| | 1938 | 1939 | 1940 | 1956 | 1957 | 1958 |
|-----------------|---|------|------|------|------|------|
| | (Percentages of total value of exports) | | | | | |
| Rubber | 21.4 | 27.4 | 27.4 | 87.1 | 60.9 | 64.0 |
| Rice | 34.8 | 36.0 | 44.1 | 0.8 | 24.8 | 25.5 |
| Rice and Rubber | 56.2 | 63.4 | 71.5 | 87.9 | 85.7 | 89.5 |

Sources: *Annuaire Statistique de l'Indochine*, 1939-40, p. 288.

Annuaire Statistique du Vietnam, 1957, p. 220.

Evolution Economique du Vietnam, 1958, pp. 64-65.

TABLE XXV

RELATIVE IMPORTANCE OF FRANC AREA, UNITED STATES AND JAPAN IN VIETNAM'S EXTERNAL TRADE

| | 1939 | 1955 | 1956 | 1957 |
|---------------|---|------|------|------|
| | (Percentages of total value of exports) | | | |
| Exports to: | | | | |
| Franc area | 32.2 | 37.3 | 67.5 | 50.8 |
| United States | 12.0 | 23.3 | 18.1 | 13.7 |
| Japan | 4.4 | 26.7 | 0.6 | 4.8 |
| | (Percentages of total value of imports) | | | |
| Imports from: | | | | |
| Franc area | 55.7 | 51.9 | 24.5 | 29.3 |
| United States | 4.2 | 12.0 | 28.0 | 22.7 |
| Japan | 1.7 | 13.3 | 25.6 | 21.3 |

Sources: *Annuaire Statistique de l'Indochine*, 1939-40, p. 147.

Annuaire Statistique du Vietnam, 1954-55, pp. 276-7; 1956, pp. 216-17; 1957, pp. 218-19.

TABLE XXVI

NEW INVESTMENT IN INDUSTRIES AND PLANTATIONS IN VIETNAM, MARCH 1958-OCTOBER 1959

| | Million piastres |
|------------|------------------|
| Vietnamese | 844.8 |
| French | 794.0 * |
| American | 39.6 |
| Italian | 32.2 |
| German | 50.0 ** |
| Chinese | 60.1 |
| Japanese | 6.4 |
| Total | 1,827.1 |

* Largely reinvestments

** Special project

Source: *Far Eastern Economic Review*, 1960 Year Book, p. 77.

BOOK REVIEWS

J. Norman Parmer, *Colonial Labor Policy and Administration: A History of Labor in the Rubber Plantation Industry in Malaya, c 1910-1941*, Monographs of the Association for Asian Studies, No. IX, New York: J. J. Augustin Inc., 1960, 294 pp. M\$25.00.

Professor J. Norman Parmer has made a valuable contribution to the growing body of Malayan historiography and particularly to the literature evaluating the record of colonialism. In the present instance, Professor Parmer has chosen to study the history of labor in the rubber plantation industry of Malaya from 1910 to 1941.

A major task of historians is to collect and to preserve the full evidence on some past phase of man's existence, and to pass objective judgement removed from the often confused, emotion-ridden atmosphere which surrounds the events as they occur. Colonialism is still a sensitive nerve-end for the newly emerging nations, and Malaya is no exception. Nevertheless, the period chosen by Professor Parmer ends twenty years ago, which helps to reduce the inevitable danger of contamination with current issues. Moreover, the more recent period is being covered by another expert on labor in Malaya.¹

Apologists or defenders of colonialism will find little comfort in this book; nor will extremists who refuse to admit any good from the colonial era. Professor Parmer has performed a most thorough job of canvassing the available records, files, and letters. Every page of this book, which in fact is his doctoral dissertation at Cornell, bears witness to his diligent scholarship with original sources. Moreover, he lets the record speak for itself and only in the conclusion does he put forward his own judgement of the British colonial labor policy and administration in Malaya. When he does present his views, it is against the background of the voluminous evidence which he has assembled and presented beforehand.

The book consists of seven chapters. The first chapter provides the non-Malayan specialist with the necessary background elements to understand the substance of the book — the early British entry into Malaya in the 1870's, the major features of British economic policy, the development of the rubber plantation industry, and the pre-1910 pattern of Indian and Chinese labor supply to Malaya. The next two chapters deal with the formation of the estate labor force after 1910 — one for the Indian and the other for the Chinese and Javanese. Chapter IV treats labor legislation and administration. Chapter V deals with wage policy; and Chapter VI, unemployment policy. There are nine useful tables in the appendix and a bibliography.

The basic thesis of the book is that labor policy in Malaya was inherently subject to the primary goal of the British government and her colonial officers in Malaya: attracting European capital for investment into commercial agricul-

1. Dr. Charles Gamba's forthcoming history of the National Union of Plantation Workers of Malaya, to be published by Donald Moore Ltd. in Singapore and his *The Origins of Trade Unionism in Malaya, 1946 - 1950* (forthcoming).

ture. Attraction required more than security of investment, social overhead capital, and favorable tax rates; it also required government aid in acquiring for the estates a plentiful labor supply. Hence, guaranteeing an adequate labor supply, especially Indian, became the cornerstone of Malayan labor policy during the period 1910 to 1941.

The social scientist who is seriously interested in Southeast Asia will consider this book a must for any basic library. Its value lies equally with the economic historian interested in the colonial era as with the sociologist studying current problems of a plural society. At several points, Professor Parmer points out what he considers to be fruitful lines for additional research, such as a history of Malayan Chinese relations with China.

The economist will find occasional gems revealing the impassive economic mechanism at work in a colonial setting, such as his description of the lodging house labor exchange system for Chinese or the eventual divergence in prices and use of quota and non-quota boat tickets for immigrant Chinese labor. Even the political scientist will find items of value in the interesting interplays between the British colonial civil servants, the planters, the owners of the estates or their London boards, the Secretary of State for the Colonies, the Controller of Labour, and the Agent from the Indian Government.

As an economist, I must confess that the most fascinating feature of Professor Parmer's work is its usefulness as a case study of monopsony, particularly with regard to the Indian labor force on rubber plantations. The burgeoning rubber industry required labor, especially inexpensive and tractable labor. With the establishment of the Indian Immigration Committee and Fund, a system was developed for assisting immigration of labor from India utilizing the famous "kangany" system. During the period, the Indian labor picture in Malaya saw the demands of the labor participating in the supply of that labor (via the Indian Immigration Fund which they financed and the Indian Immigration Committee in which they participated). When rubber prices rose and larger quantities of labor were required, i.e., a rightward shift in demand for plantation labor, the industry was able to increase the available stock of labor providing the labor services by increasing the rate of immigration, i.e., simultaneously shifting the supply schedule for plantation labor to the right. Moreover, this was done in such a way that both rightward shifts prevented substantial increases in wage rates. Concerted action by employers was also taken to supplement their monopsonistic controls such as legal prohibitions against "crimping" (attracting away another employer's labor by offering higher wages) or the practice of late payment of wages or the "discharge ticket" system to hinder estate labor mobility. The ability of the rubber industry to prevent or reduce the upward rise in wages by control of the additions to the existing stock of labor is a fascinating vignette of the colonial period.

At various points, Professor Parmer enlivens his presentation with vivid eyewitness accounts. The descriptions of the "pig" trade, as the traffic in Chinese labor was called, where human beings take on all the characteristics of a non-human economic commodity, will remind readers of similar descriptions of slavery in the nineteenth century by U.S. historian U.B. Philipps and by Brazilian Gilberto Freyre. The squalid conditions under which immigrant Indian labor came to Malaya by ship is a stark indictment of the period.

The style tends to be somewhat heavy, but this is a chronic difficulty with a historical treatise based on primary sources and which attempts to present an

indisputable factual base. Footnotes are liberally used but with restraint insofar as content. My one complaint on style is Professor Parmer's preference for official titles rather than the names of the individuals. "Commissioner" or "Agent" or "a leading planter" tend to leave the reader with a feeling of faceless history plus an acute case of mental indigestion. I must confess a personal preference for spicing up history with names, especially the more colorful personalities who produce delightful anecdotes often serving as a memory aid to recall a particular historical incident of more serious note.

Only after several pages does the reader begin to detect that Professor Parmer is gifted with an extremely dry sense of humor presented in very low key. For example, when discussing the "Truck Enactments" ("truck is the practice of employers' deductions from wages for goods supplied to their laborers), Professor Parmer observes,

"The Malayan government decided that the truck enactments would have to be administered with 'care and discrimination' to insure that no hardship would be inflicted on the employers. In effect this meant that the law was not enforced." p. 116.

Elsewhere, he quotes the reminiscences of a Controller of Labour when he was a junior officer:

"(The planter) asked me what I knew about planting . . . and told me he had fifteen years in Demarara and ten in this country. I replied that I was more interested in billiards than planting. He asked me if I had ever done a day's work in my life, and I said I had not . . . He then asked me whether I was going to teach him how to run his labour force. Opening the attache case on the back of my bicycle and taking out my copy of the Labour Code, I shook it under his nose and replied: 'I may not know anything about labour, but I do know the Labour Code and it is my duty to see that it is in force.' We then proceeded on to his estate where he was extraordinarily nice to me, and I broke all regulations by having tiffin with him. He became a firm friend of the Labour Department . . ." p. 141.

Although the author is not responsible, the frequent typographical errors scattered throughout the text detract considerably. When Nehru's first name is spelled with a beginning 't' instead of 'j' (p. 259), the average reader will become somewhat annoyed.

I would have liked fuller treatment of the relative supply elasticities of Indian and Chinese labor and the probable changes in the substitutability of Indian and Chinese labor through time. Although at various points Professor Parmer implies that the relative elasticities are in fact different, the subject is not pursued sufficiently, perhaps due to the admitted difficulties and inadequacies of information on Chinese labor.

In many ways the most significant contribution of the book is the light which it sheds on the present-day problem of Malaya's plural society. The book treats many of the major elements contributing to the present situation. Any student wishing to understand the genesis of this important problem will find fruitful material. As Professor Parmer aptly points out,

"In determining labor policies and conducting labor administration almost no thought was given to the effect on Malaya — on the social and ultimately the political life of the country. Malaya had no nationalist

movement which could force governmental attention to social and political questions. The handful of Malays and domiciled non-Malays who expressed doubts and fears about government actions were unsupported by public opinion. The British could not foresee a time when their rule would come to an end. . . . The chief legacy of British labor policy and administration is the plural society." p. 269.

C. R. WHARTON, JR.*

J. J. Puthucheary, *Ownership and Control in the Malayan Economy*, Singapore: Eastern University Press, 1960, 187 pp. M\$4.50.

As a study of the ownership and control of wealth in Malaya this book, despite the fact that some of the statistics are inconclusive and out of date, is a significant contribution to the better understanding of the structure and problems of the Malayan economy.

In the first part of the book, the author examines the nature of ownership and control in various aspects of the economy, with particular emphasis on its communal characteristics. To appreciate the communal characteristics of the present structure of industrial ownership and control one must maintain the historical development of the social, political and economic institutions in correct perspective. This racial identification of ownership and control in itself has little economic significance. What is significant is the question whether this complex of ownership and control has resulted in any collusive action in restraint of the economic development of the country. Such restrictive actions, either by virtue of collusion or concentration of economic power, should be appropriately curtailed irrespective of race or nationality.

In this respect the author has offered very little substantiating evidence. He has, however, managed to dispel certain popular beliefs in the communal identification of exploitation and economic control in different sectors of the economy. In particular, he has shown that the poverty of those engaged in subsistence agriculture is actually the result of low productivity. The restriction of land ownership by the introduction of Land Reservation Laws has resulted in the mere substitution of Malay rentiers for Chinese rentiers and the plight of the Malay tenant farmers remains substantially unchanged.

The distinction between ownership and control and the extent to which ownership implies control is not very clearly stated, although the author contends that "the most important type of business organization — though not the most common — is the public limited company." Further, the nature of control and its attendant ramifications are not adequately treated. In the discussion of the rubber industry and the agency houses, control takes the form of concentration of managerial agencies and interlocking directorships. It is difficult to assess whether such concentrations are in effect the consequence of limited administrative and technical facilities or whether they have other implications. In fact, in the integration of the rubber plantation industry, the collusive actions of the group have contributed much towards the growth and improvement of the rubber

* Although the monograph series of the Association of Asian Studies, of which the book reviewed is part, has been partially aided by a grant from the Council on Economic and Cultural Affairs, Inc (NY), the opinions expressed by the reviewer are his own and not those in his capacity as a member of the Council staff.

industry in this country. Only in the discussion of the mining agencies was there any attempt to indicate the form and significance of control through the concentration of ownership and management.

The second part of the book is more provocative, and deals with the general theme of capital and capital formation. This is particularly important in the discussion of the development of secondary industries. The usual arguments that the limitation of natural resources and of capital have been the cause of the present lack of secondary industries are skilfully refuted by the author and relegated to a position of subsidiary importance. A more significant aspect is that capital has been mainly concentrated in the rubber and tin industries and commerce which do not set into motion conditions favourable to industrial development, and that "the rate of industrial expansion is determined by the development that has already taken place."

The author points out that private foreign investments have, so far, mostly gone into the extractive industries and therefore do not generate the main secondary multiplier effects. Furthermore the outflow of profits and the outflow of wages as a result of an immigrant labour force, have tended to lessen the income multiplier effect. In addition the large profits made by foreign capital result in the "demonstration effect" of attracting domestic capital into those same basic industries, thus restricting the expansion of secondary industries. It is quite evident that the profit motive is a primary catalyst of investment, be it domestic or foreign, and that any public policy of channelling capital investment into appropriate secondary industries must give adequate consideration to this incentive.

The author maintains that some of the investments most needed may not attract private investors because of the lack of profit incentive, and that social and economic benefits which cannot be translated into immediate profits will not enter into the private investors' calculations. Any large scale public investment, however, would have to be supplemented by private investment if a sustained growth is to be maintained, and to this end adequate incentives must be provided. Whether private investors are fully aware of the social costs in the form of unemployment or social benefits in the form of external economies, the most compelling reason for industrialisation is Malaya's rapidly increasing population.

LIM CHEW SWEE

Harold G. Moulton, *Can Inflation be Controlled*, London: George Allen & Unwin Ltd., 1960, 302 pp. 21s.

Chang Kia-NGAU, *The Inflationary Spiral — The Experience in China, 1939-1950*, London: Chapman & Hall Ltd., 1958, 394 pp. US\$10.00.

These two books on the same subject are both written by senior men in the academic and practical field of monetary economics. However, one concerns the inflationary tendency in a fully monetized and affluent economy of the United States; the other relates the experience of hyper-inflation under the strain of war financing in backward and underdeveloped pre-Communist China. The books are here reviewed together to show the contrast of underlying elements which brought about the threat of inflation in the two countries.

In the case of America, persistent discussions have appeared in the economic journals over the last few years on the question of whether creeping inflation in

that country was demand-pulled or cost-pushed. Dr. Moulton is non-committal in his recommendations for the control of inflation, although he is subdued to the popular opinion among the more conservative economists that the wage rates in the United States have risen too rapidly in comparison with the increase in labour productivity. He is of the opinion, therefore, that a balance should be struck between the rate of increase of these two magnitudes.

This reviewer wonders whether there is sufficient wisdom in the isolation of the two co-operant factors, aggregate demand and factor cost, which are mutual causes and effects. For example, would it not be more fruitful for the monetary economists in that country to inquire into other factors beyond the element of wage costs, in order to find out the composite forces determining the faster rate of increase in aggregate money demand, which outstripped either the improvement in labour productivity or the increase in aggregate output? The phenomenal increase in consumer debts during the last couple of years could, for instance, be just as important a factor as the rapid rise of wage rates in relation to aggregate money demand, although the part played by fiscal policies has been rather passive over the last few years.

Perhaps there is some truth in the assertion that in a highly advanced capitalistic economy like the United States, creeping inflation may be the only possible way of solving the paradoxical case of the desire to boost the money demand in the economy by the liberal supply of consumer credit and the rapid accumulation of consumer indebtedness on the one hand; while the wage rates have to increase at a faster rate in order to maintain the volume of effective demand and to bring about the co-ordinating effect of the relative alleviation of debt burden on the other hand. To maintain a fair degree of full employment in the United States economy, the emphasis should perhaps be on how successful are the fiscal and monetary authorities in their efforts to level off the inflationary tendency, rather than the question of how to get rid of inflation.

Creeping inflation has perhaps to be accepted, although quite reluctantly, as a major built-in stabilizer of employment and income and a necessary condition for attaining a certain rate of growth in an economy such as the United States. To borrow a phrase from Dr. Moulton, this phenomenon may have become "an inherited part of the private enterprise system" in its effort to maintain a fairly full employment. There seems to be no satisfactory solution for the contradiction between growth and stability in that context, although the wise counsel of Dr. Moulton that the rise of wage rates should be kept more or less in line with the rate of improvement in labour productivity should always be heeded.

Readers may feel that Dr. Moulton is treading on familiar ground in his book, but such solid ground is worth retreading for students of monetary economics interested in the study of inflation in an advanced economy.

In the case of pre-Communist China, there can hardly be a more suitable person than Professor Chang to tell us the experiences of the inflationary spiral which China underwent in her wartime and post-war periods. An agglomeration of fiscal and monetary policies was tried out in China from 1939-1950, ranging from the indirect control of credit through interest rate manipulation and debt management, to the direct measures of control on foreign trade and exchanges, and on prices and wages. The most tragic failure of the Nationalist Government before its downfall was undoubtedly the so-called monetary reform

in 1948. The Chinese experience is unique in the sense that the burden of war expenditure was so very much prolonged that the economy had reached breaking-point long before the ill-timed monetary reform. The runaway inflation was manifested by the serious distortion of productive activities in the country, while the price level and exchange rates were rising many times faster than the rate of increase in money supply.

The problem of inflation in China, therefore, assumed an entirely different characteristic compared with what Dr. Moulton discussed in the case of the United States. Professor Chang hopes, however, that the experience of China will be a useful lesson for underdeveloped countries. In this sense the reviewer will agree, so long as the element of the prolonged burden of war expenditure has been clearly indicated.

However, there are common features shared among the underdeveloped countries in the limitations of monetary and fiscal policy for the control of inflation, within the rather rigid structure of their economies. Even under normal peacetime conditions, there has been much less room for the monetary authorities to manoeuvre in checking the acceleration of the inflationary tendency. Once the tendency has been established, such an inflation no longer creeps but gallops instead. This phenomenon has been thoroughly discussed among economists of underdeveloped areas, and therefore need not be elaborated here.

A large country like China, in her pre-Communist era, had many different sectors of her economy, each showing varying degrees of monetization, and responding to monetary controls in different ways. This, then, is the precious historical lesson which should be noted by monetary authorities and students in other underdeveloped countries from Professor Chang's book, a book which is so rich in material that it is quite impossible to present a brief extract in this review.

The record of Professor Chang's experience as a former governor of the Central Bank of China during the critical inflationary period under review, is therefore a welcome contribution to the literature on monetary economics.

K. R. CHOU

Murray D. Bryce, *Industrial Development — A Guide for accelerating Economic Growth*, New York: McGraw-Hill Book Company Inc., 1960, 282 pp. US\$7.50.

This book is neither original in substance nor profound in its analytical insights. If it were to serve as a "practical guide" to industrial project planners in areas already well along the path to industrialization, it might have considerable value. In the typical "underdeveloped" areas of the world today, however, its usefulness is severely limited.

The limitations of the book stem from the author's implicit and explicit assumptions that decisions regarding industrialization can be made on the basis of conventional marginal cost and marginal benefit measurements, each expressed in finite monetary terms. By ignoring critical contextual variations of an economic, social and political nature, this reviewer feels that author Bryce fails economic, social and political nature, this reviewer feels that author Bryce fails tion in underdeveloped areas.

It should be obvious, for example, that the most important decisions facing project developers in newly developing areas are those which involve fundamental

structural changes in societies and their economies, not marginal changes. It is difficult to see how one can hope to use the same type of marginal monetized cost-benefit criteria in deciding on the establishment of another steel mill in the Ruhr Valley or in Japan and the establishment of a pioneering new steel industry in areas of Africa or Asia which are completely without an industrial tradition.

To say this, does not depreciate the usefulness of the economist's marginal tools. It merely suggests that the application of marginal analysis to many situations is singularly inappropriate, since the institutional matrix upon which the whole validity of marginal decisions in industrially developed areas rests, is invariably lacking in underdeveloped areas. Industrial Development, at the early stages, calls for the art rather than the science of economists.

In the initial chapters of *Industrial Development*, the literature now extant on investment criteria is thoroughly canvassed, and some interesting and sensible things are said on several of the major theoretical conflicts which have concerned economists in recent years. These include the arguments for labor intensive projects on the one side and capital intensive on the other; the conflict over emphasis on small and large sized projects in development; and the controversies over Government vs. private investment in development. Also included in the early chapters is an analysis of the role of a market pricing mechanism, and profits within this market mechanism, as an indicator of the social desirability of a particular enterprise. Qualifying problems such as foreign exchange earnings and the distortions to markets introduced by exchange controls are also discussed.

In the middle chapters of this book, the author has worked out a whole series of criteria for judging the monetary "value" and "cost" of alternative industrial projects. The complexity of the problem, as already suggested, is only partly recognized by the introduction of choice alternatives in regard to plant size, foreign exchange benefits, commercial profitability, national economic worth and private vs. public ownership. By ignoring, or subsuming in his arguments, many of the critical, social and political policy decisions concomitant to industrial projects, reality is sacrificed on the altar of analytical neatness.

The latter part of the book is devoted to an elementary discussion of the proper sequence for studying the feasibility of a project and its financing. Numerous tables are included, with various types of balance sheet estimates involving cash flow, proforma inputs and outputs, earnings, working capital requirements and so on. The final chapters discuss the availability of international institutional capital for development with brief comment on the I.M.F., the Development Loan Fund and the American I.C.A. technical aid programs.

For a limited number of people the book might have some handbook value. For most individuals concerned with industrial development in Asia, Africa or South America, it adds little to the basic literature on industrial or economic development.

T. R. McHALE

R. S. Howey, *The Rise of the Marginal Utility School, 1870-1889*, Lawrence: University of Kansas Press, 1960, 271 pp. US\$7.50.

Using the well-known publications of Jevons, Menger and Walras as a point of departure, Professor Howey traces in monographic detail the antecedence, emergence and acceptance of the Marginal Utility Theory during the latter part of the nineteenth century.

BOOK REVIEWS

The author does not challenge the widely accepted view that Jevons, Menger and Walras developed their similar ideas independently of each other, but does credit Jevons with the first complete development of the idea. He also points out the legitimate claim to originality in the use of Marginal Utility Theory that can be made for Marshall, Edgeworth, and J. B. Clark.

Bibliography on Demand Analysis and Projections, Rome: Food and Agriculture Organization, 1959, 167 pp. (mimeo.)

This bibliography contains more than five hundred post-war references, most all of which are annotated, dealing with the demand for food and agricultural raw materials. The references are classified in four major groups, and include methodology, commodities (with twenty-eight sub-divisions), projections classified by countries, and statistical sources classified by countries.

The bibliography is the most extensive selection of material in the field, and is an extremely useful guide for anyone working in, or interested in, the methodology and the application of demand analysis and projections.

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